Stephen C

HOT SPOT-1 DELINEATION

L.E.CARPENTER WHARTON, NEW JERSEY

June 1998

Jann W. Van Maturck / A To

James Van Nortwick, Jr., Ph.D., P.E.

Project Manager

Steven J. Chillson, P.G.

Project Geologist

RESIDUALS MANAGEMENT TECHNOLOGY, INC.

999 PLAZA DRIVE, SUITE 370

SCHAUMBURG, IL - 60173-5407 847/995-1500 - 847/995-1900 FAX







Table of Contents

1.	Intr	oduction	•••••
	1.1	Introduction	
	1.2	Background	
	1.3	Purpose and Scope	
2.	Met	hods and Procedures	
	2.1	Soil Boring Activities	
	2.2	Monitoring Well Installation Activities	7
	2.3	Monitoring Well Development Activities	8
	2.4	Groundwater Sampling Activities	8
	2.5	Investigation Derived Wastes	
3.	Resu	ılts	9
	3.1	Site Stratigraphy	9
	3,2	Groundwater Flow Direction	
	3.3	Chemical Analyses of Groundwater	9
	3.4	Summary	12
4.	Refe	rences	13
T ict	of Fi	711705	
		io.	
Figu		Site Location Map	
Figu		Site Plan	
Figu		Hot Spot-1 Area	
Figu		Groundwater Contour Map	
Figu	ire ɔ	Chemical Analyses of Groundwater	11
List	of A	pendices	
App	endix	A USEPA and NJDEP Letter Dated January 20, 1998	
App	endix	B Summary Tables of Historical DEHP Soil Results	
App	endix	C Well Permits, Soil Boring/Well Construction Logs, Well Development	
		Information, Survey Maps	
App	endix	D Field Sampling Data	
App	endix	F. Laboratory Reports	



Section 1 Introduction

1.1 Introduction

L.E. Carpenter has been conducting subsurface investigation and remedial action activities at their facility located at 170 North Main Street in Wharton, New Jersey, in accordance with the New Jersey Department of Environmental Protection (NJDEP) Amended Administrative Consent Order issued in 1986. Subsurface investigation and remedial action activities were conducted at the facility since that time and have included the advancement of soil borings, the installation of groundwater monitoring wells, soil, sediment and groundwater sampling activities, and the installation of a free-product recovery system.

In April 1994 the NJDEP issued a Record of Decision (ROD) for the L.E. Carpenter site. The ROD summarized the results of the remedial investigation, the base line risk assessment, the remedial alternatives, and presented the selected remedy. The ROD required remediation of groundwater and excavation and disposal of "hot spot" soils.

Certain "hot spot" areas have been addressed, however, there are several areas of environmental concern that are still undergoing corrective action and/or evaluation. These include the following:

- Free-Product Area: The Free-Product area is approximately 100 feet by 500 feet in areal extent and is located in the central/eastern portion of the site. Free-product recovery operations are currently being conducted and groundwater remediation activities will be initiated once the free-product has been removed.
- Hot Spot-1 Area: The Hot Spot-1 area is located immediately west of Building 9 along the western property boundary. The groundwater in this area is impacted by bis (2-ethylhexyl) phthalate (DEHP). The nature and extent of DEHP-impacted groundwater is currently being investigated in accordance with the NJDEP-approved workplan dated August 1996.
- Hot Spot-4 Area: The Hot Spot-4 area is approximately 45 feet by 25 feet in size and is located southeast of the former Building 14 in the central/eastern section of the property. The soil located above the groundwater table in this area is impacted by DEHP. In accordance with the NJDEP-approved workplan dated August 1996, approximately 32 cubic yards of DEHP-impacted soil will be removed from this area and relocated to the former Waste Disposal area located along the eastern property boundary.



- MW-19 Area: The MW-19 area is located immediately west of Building 9 along the western property boundary. The groundwater in this area is impacted by volatile organic compounds (VOCs). The nature and extent of the VOC-impacted groundwater is currently being investigated in accordance with the NJDEP-approved workplan dated August 1996.
- Hot Spot B Area: The Hot Spot-B area is approximately 70 feet by 110 feet in size and is located immediately southwest of the former Building 14 in the central/eastern section of the subject site. The uppermost 5 feet of soil in this area is impacted by lead.
- Hot Spot C Area: The Hot Spot-C area is approximately 50 feet by 90 feet in size and is located immediately southeast of the former Building 14 and is adjacent to the Hot Spot 4 area in the central/eastern section of the subject site. The uppermost 5 feet of soil in this area is impacted by lead.
- Wharton Enterprises Property: This area is located off site just east of the drainage ditch which separates the L.E. Carpenter site from the Air Products, Inc. property. Surface soils at several locations in this area are impacted with polychlorinated biphenyls (PCB's).

The results of the subsurface and remedial action activities were submitted to the NJDEP and the U.S. Environmental Protection Agency (USEPA) and are described in the Final Supplemental Remedial Investigation Addendum Report (Roy F. Weston, September 1992), the Second Quarter Progress Report (Roy F. Weston, August 1996), and the Fourth Quarter 1997 Groundwater Monitoring Report (RMT, Inc., April 1998). In a letter dated January 20, 1998, the NJDEP requested additional information regarding several of the "hot spot" areas including the Hot Spot-1 area (See Appendix A). A site locator map, a site plan showing the locations of soil borings, groundwater monitoring wells, and free-product recovery system, and a site plan showing the location of the MW-19 area are presented in Figure 1, Figure 2, and Figure 3, respectively.

In February 1998, L.E. Carpenter engaged the services of RMT, Inc., (RMT) to conduct a subsurface investigation to define the extent of DEHP-impacted groundwater in the vicinity of the Hot Spot-1 area as stipulated by the NJDEP in their letter dated January 20, 1998. This report specifically addresses the subsurface investigation activities conducted in the Hot Spot-1 area.

1.2 Background

The Hot Spot-1 area is located immediately west of Building 9 and is associated with two former 10,000 gallon underground storage tanks (USTs) which contained used methyl ethyl ketone (MEK) and pigments (UST E-3 and UST E-4). The USTs and the impacted soil surrounding the USTs were removed from the site in 1991. After tank removal activities had been completed, Weston conducted soil and groundwater sampling activities to determine whether the subsurface had been impacted by previous operations conducted at the facility.



The results of the subsurface investigation identified the presence of benzene, toluene, ethylbenzene, xylene, and DEHP in soil and groundwater samples collected in the immediate area surrounding the former UST excavation at concentrations exceeding the remedial goals stipulated in the Consent Order.

Based on these results, Weston conducted additional soil excavation activities in November and December of 1994. The results of chemical analyses performed on soil samples collected from the excavation during the soil removal activities identified the presence of DEHP at concentration exceeding the soil cleanup criteria (100 mg/kg). In response to these findings, additional soil sampling activities were conducted during the second quarter of 1996 to further define the extent of DEHP-impacted soil. The results of the additional sampling activities identified the presence of DEHP at concentrations exceeding 100 mg/kg in soil samples collected near or below the groundwater table. However, the results of the chemical analyses performed on soil samples collected from the unsaturated soil did not identify the presence of DEHP at concentrations above the remedial goal. Based on these results, Weston concluded that the presence of DEHP in the soils in the vicinity of Hot Spot 1 was related to a fluctuating groundwater water table. The results of chemical analyses are summarized in Appendix B.

1.3 Purpose and Scope

The purpose of this report is to address NJDEP/USEPA concerns regarding the extent of DEHP-impacted groundwater in the vicinity of the Hot Spot-1 area. The scope of work included the advancement of soil boring, the installation of additional groundwater monitoring wells, and soil and groundwater sampling activities to further define the impacted area. Due to the close proximity of the associated MW-19 area to the Hot Spot-1 area, the scope of work requested by NJDEP for each area was combined so that both investigation areas could be addressed using the same monitoring wells. The combined scope was verbally approved by NJDEP during the telephone conversation with Steve Chillson (RMT) and Gwen Zervas (NJDEP), on February 16, 1998. The scope of work conducted by RMT included the following tasks:

- Installation of the four permanent groundwater monitoring wells (MW-19-1 through MW-19-4) and one temporary groundwater monitoring well (MW-19-5).
- Measurement of groundwater elevations in the new and existing groundwater monitoring wells in the vicinity of the former USTs.
- Chemical analysis of groundwater samples collected from new and existing groundwater monitoring wells.

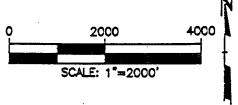




QUADRANGLE LOCATION

SOURCE:

BASE MAP FROM DOVER, NEW JERSEY, 7.5 MINUTE USGS QUADRANGLE, DATED 1981.



SITE LOCATOR MAP LE CARPENTER WHARTON, NEW JERSEY



DWN. BY: DFL	
APPROVED BY:	
DATE: APRIL 1998	
PROJ.# 3868.02	
FILE # 38680208	_

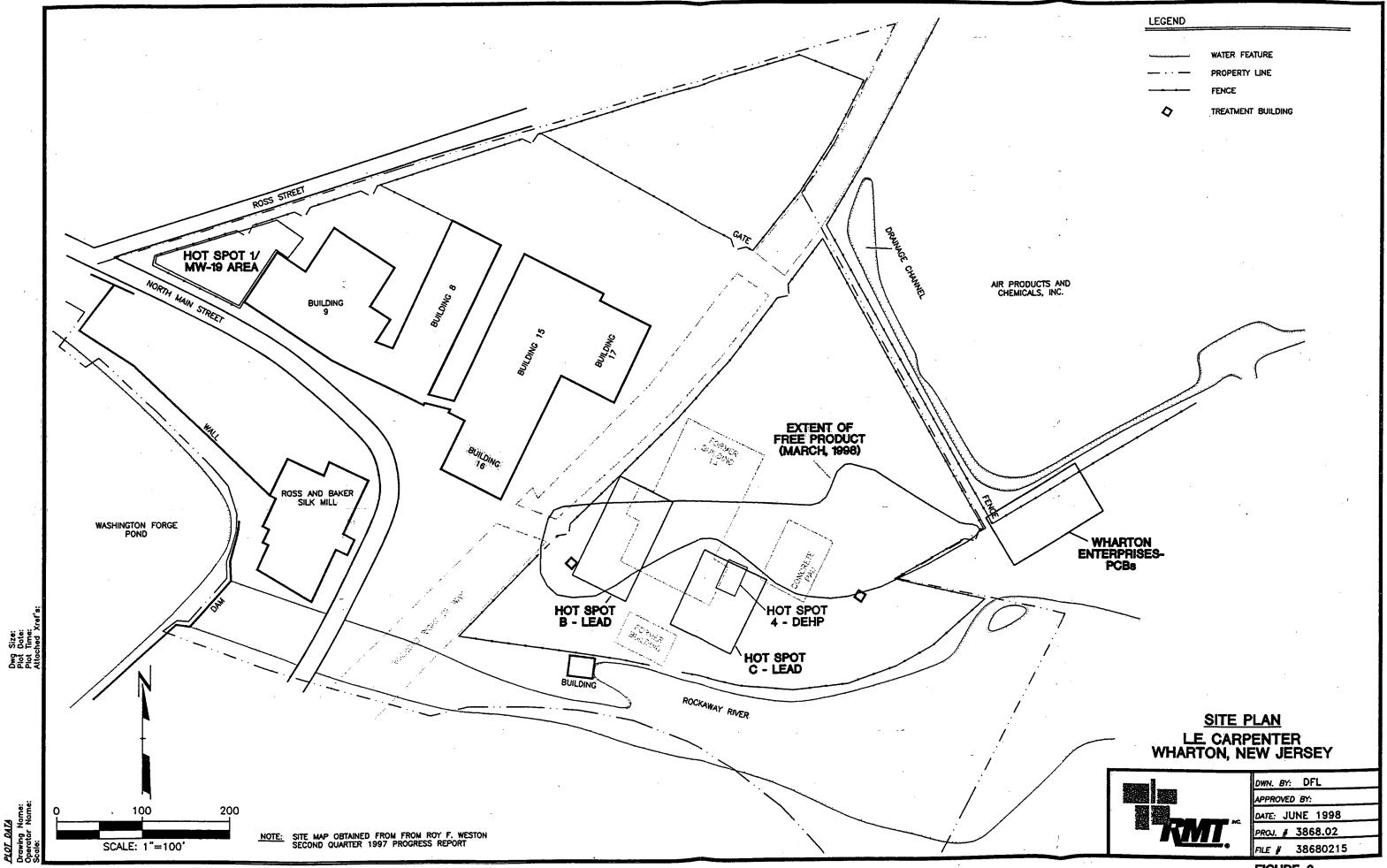


FIGURE 2

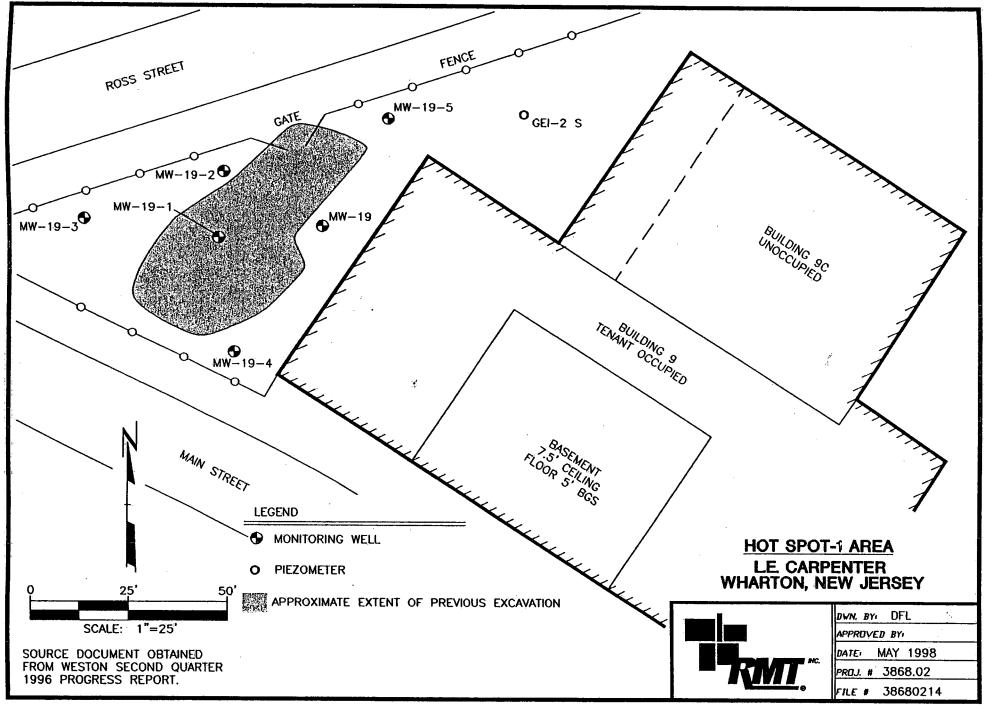


FIGURE 3



Section 2 Methods and Procedures

Field activities were conducted by RMT during the weeks of February 20 and 27, 1998, and included the installation of five groundwater monitoring wells (MW-19-1, MW-19-2, MW-19-3, MW-19-4, MW-19-5) in the area surrounding the former USTs in accordance with the NJDEP letter dated January 20, 1998. Prior to conducting the field activities, RMT obtained monitoring well installation permits, located on-site utilities, and notified the utilities companies that drilling activities were being conducted at the subject site. The methods and procedures used to conduct the field activities are presented in the following sections and the locations of the groundwater monitoring wells are presented in Figure 3. Copies of the monitoring well installation permits are included in Appendix C.

2.1 Soil Boring Activities

Soil borings MW-19-1 through MW-19-5 were advanced to a depth of approximately 18 feet bgs using rotary air hammer drilling methods. Continuous split spoon sampling was conducted during the advancement of soil borings MW-19-1 and MW-19-2 to further characterize the stratigraphy of the underlying soil and determine the appropriate monitoring well screen intervals. The soil samples were examined in the field by a geologist and classified using the United Soil Classification System (USCS). In addition, each sample was examined for indications of staining and/or contamination. All soil boring activities were conducted by Aquifer Drilling and Testing, of Trenton, New Jersey. Copies of the soil boring logs are presented in Appendix C.

2.2 Monitoring Well Installation Activities

Once soil boring activities had been completed, monitoring wells were installed in each soil boring. Monitoring wells MW-19-1 through MW-19-4 were constructed of 10-foot-long, 4-inch-diameter stainless steel screen and stainless steel riser. The temporary monitoring well, MW-19-5, was constructed using a 10-foot long 2-inch diameter PVC screen and riser. Each monitoring well extends to a depth of approximately 18 feet bgs and is screened between 6 to 15.5 feet bgs. A medium grained sand was used as a filter pack around each monitoring well screen and extended above the top of the screened interval approximately 2 feet. Approximately 2 feet of bentonite was placed above the sand as a seal to prevent infiltration of the overlying cement-bentonite backfill into the filter pack. The monitoring wells were completed by installing a protector pipe and lock. Once groundwater monitoring well



installation activities had been completed, each well was surveyed to determine groundwater elevations and flow direction.

The monitoring well installation activities were conducted by Aquifer Drilling and Testing of Trenton, New Jersey, and site surveying activities were conducted by Recon, Inc., of Whippang, New Jersey. Copies of the groundwater monitoring well construction details, monitoring well survey maps, and certifications are provided in Appendix C.

2.3 Monitoring Well Development Activities

No sooner than 24 hours after monitoring well construction activities were completed, each monitoring well was developed by bailing the sediments present in the base of the well, surging the wells with a surge block, and purging nine well volumes using a displacement pump, until the purge water was relatively clear and sediment-free. The pH, temperature, turbidity, conductivity, and volume of water removed during development was recorded during the monitoring well development activities. Copies of the monitoring well development records are included in Appendix C.

2.4 Groundwater Sampling Activities

Groundwater sampling activities were performed by Envirotech Research, Inc., on March 3, March 25, and April 10, 1998, and included obtaining groundwater samples from monitoring wells MW-19, MW-19-1 through MW-19-5 and GEI-25. Prior to initiating the groundwater sampling activities, the depth to groundwater was measured using a electronic water level indicator. Each monitoring well was then slow purged by removing three to five well volumes of groundwater using a peristaltic pump. The temperature, pH, conductivity, and turbidity of the extracted groundwater was measured and recorded throughout the purging activities. Once the monitoring well had been sufficiently purged, groundwater samples were collected from each monitoring well using a Teflon bailer in accordance with procedures presented in the NJDEP Field Sampling Procedures Manual dated May 1992. Monitoring well data collected during sampling is displayed in Appendix D.

2.5 Investigation Derived Wastes

Drill cuttings, monitoring well development water, purge water, and decontamination fluids were contained in 55-gallon DOT-approved drums, labeled with the date, generators name, site location and source, and stored at the L.E. Carpenter facility pending chemical analyses and disposal. A copy of the waste disposal manifest will be submitted once the investigation derived waste are removed from the site.



Section 3 Results

3.1 Site Stratigraphy

The stratigraphy in the vicinity of the Hot Spot-1 area consist primarily of fine to coarse grained sand and gravel with some silt, cobbles and boulders. Soil borings MW-19-3 through MW-19-5 were not sampled, however, based on the soil cuttings generated during the drilling activities, no changes in the stratigraphy were observed. These results are consistent with documented soil characteristics observed by Weston during previous soil boring activities conducted in the Hot Spot-1 area.

3.2 Groundwater Flow Direction

The static water level measurements collected during the groundwater sampling activities were used to determine the localized hydrogeologic conditions in the vicinity of the Hot Spot-1 area. The water table elevations indicate that shallow groundwater in this area of the site is flowing in a northeastern direction as displayed on Figure 4. Groundwater is flowing under a relatively flat hydraulic gradient of approximately 0.006 ft/ft. The groundwater flow direction appears to be consistent with shallow water table flow patterns observed at the site.

3.3 Chemical Analyses of Groundwater

Groundwater samples collected from monitoring wells MW-19, MW-19-1 through MW-19-5, and GEI-2S were chemically analyzed for the presence of DEHP using EPA SW-846 Method 625. The results of chemical analyses performed on groundwater samples collected from monitoring wells MW-19-1, located in the center of the former UST excavation area, and monitoring well MW-19-5, located approximately 15 feet downgradient of the former UST excavation area identified the presence of DEHP at concentrations of 190 and 42 μ g/L, respectively (the NJDEP Groundwater Quality Standard is 30 μ g/L). The results of the chemical analyses performed on all other samples did not identify the presence of DEHP at concentrations above the NJDEP Groundwater Quality Standard (MW-19; 6.6 μ g/L, MW-19-2; 8.8 μ g/L, GEI-2S; 2.5 μ g/L, MW-19-3; <1.2 μ g/L, and MW-19-4; <1.2 μ g/L).

The results of the chemical analyses are summarized in Figure 5. All chemical analyses were performed by Envirotech Research, Inc., of Edison, New Jersey. A copy of the laboratory report and chain-of-custody form is included in Appendix E.

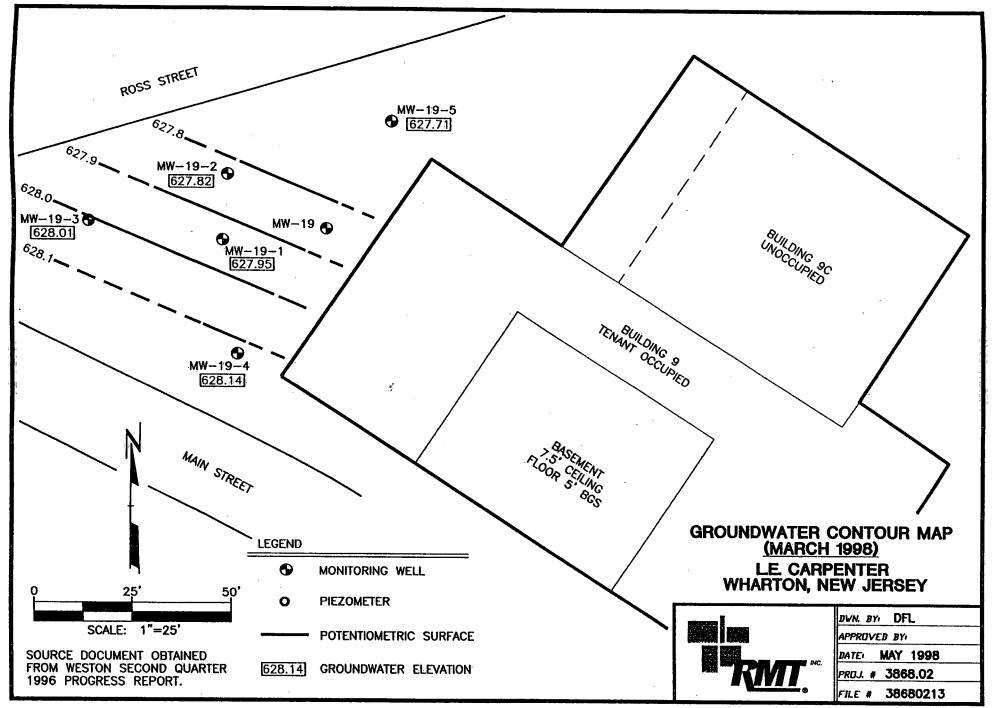


FIGURE 4

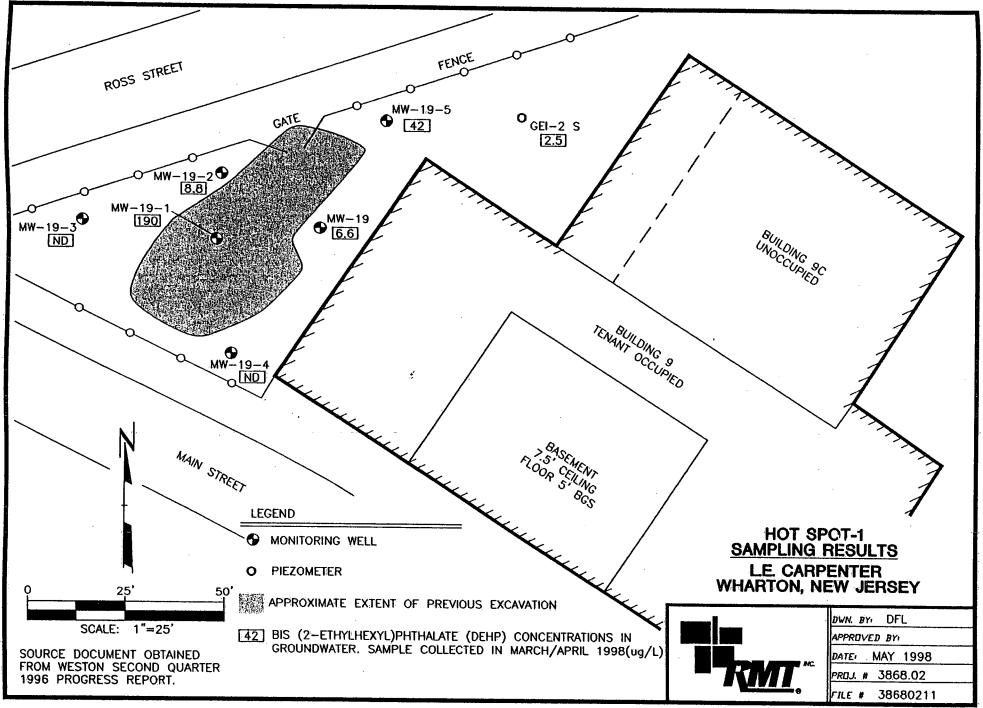


FIGURE 5



3.4 Summary

The results of previous soil and groundwater sampling activities conducted in the vicinity of the Hot Spot-1 area identified the presence of DEHP. Based on the relatively low concentrations of DEHP, the flat hydraulic gradient (0.006 ft/ft), and the fact that DEHP has a similar biodegradation rate in water as those of m-xylene and toluene, it is likely that natural attenuation processes are occurring at the subject site. The term "natural attenuation" refers to naturally-occurring processes in soil and groundwater environments that act without engineering intervention to reduce the mass, toxicity, mobility, and concentration of contaminants in those media. Natural attenuation depends upon natural physical processes, such as, dispersion, dilution, and adsorption to dissipate constituents and biodegradation to chemically transform constituents to achieve cleanup goals.



Section 4 References

- RMT, Inc., 1998. Proposal for Monitoring Well Installation.
- Roy F. Weston, Inc., 1992. Final Supplemental Remedial Investigation Addendum for L.E. Carpenter and Company.
- Roy F. Weston, Inc. 1996. Second Quarter Progress Report L.E. Carpenter Site, Wharton, New Jersey.
- State of New Jersey, Department of Environmental Protection, January 20, 1998. Letter regarding the L.E. Carpenter Superfund Site, Wharton, Morris County.
- Agency for Toxic Substances and Disease Control Registry, 1993, Toxicological profile for Di (2-ethylhexyl) phthalate.
- Howard, P., R.S. Boethling, W. F. Jarvis, W.M. Meylan, E. M. Michalenko, 1991, Environmental Degradation Rates, Lewis publishers.



Appendix A USEPA and NJDEP Letter Dated January 20, 1998



State of New Jersey

Department of Environmental Protection

JAN 23

Robert C. Shinn, Jr.

Commissioner

Mr. Cristopher Anderson Director, Environmental Affairs L.E. Carpenter & Company 200 Public Square Suite 36-5000 Cleveland, OH 44114-2304

JAN 20 1998

Dear Mr. Anderson:

Christine Todd Whitman

Covernos

Re: L.E. Carpenter Superfund Site Wharton, Morris County

The New Jersey Department of Environmental Protection (Department) and the U.S. Environmental Protection Agency (EPA) have reviewed the Second Quarter Progress Report dated August 1996. This document provided information regarding historical site information regarding the lead levels (Inorganic Hot Spots B and C) as well as information about Hot Spots 1 and 4 and the MW-19 area. Comments are presented below:

1. Inorganic Hot Spots B and C - The document states that the levels of lead in the soil that exist on site are a result of historical mining activities, and not attributable to L.E. Carpenter activities. While the Department and EPA believe that these lead levels in the soil may be at background concentrations that exist in this area, more information is needed. Therefore, it is requested that L.E. Carpenter obtain twenty samples from off-site locations and analyze them for lead in order that those results can be compared to the levels found on the L.E. Carpenter property. Twenty samples are required so that the results can be considered statistically significant.

Alternatively, L.E. Carpenter can develop a revised risk assessment to determine the risk associated with leaving the lead contaminated soils on site as well as a focused feasibility study that would address the soil capping alternative for the lead contaminated soils. In this case, the lead contaminated soils would only be allowed to be left on site if the risk posed is within the acceptable range of 10^{-4} to 10^{-6} and all soils over 600 ppm would be capped with a soil cover.

- 2. Hot Spot 1 The argument that DEHP in soils at Hot Spot 1 is due to ground water smearing is very weak. DEHP is not fully delineated in this area, therefore, it is requested that additional well points be installed at B-1, B-3, and B-4 and analyzed for DEHP.
- Hot Spot 4 The recommendation for additional limited excavation is acceptable, however post-excavation samples are required on the southeast

side of the excavation unless the planned excavation is continued to points 4-DEL-3 and 4-DEL-7.

4. MW-19 Area - The proposed delineation plan for MW-19 area is acceptable.

Please feel free to contact me at (609) 633-7261 if you have any questions.

Sincerely,

Gwen Barunas, P.E.

Case Manager

Bureau of Federal Case Management

c: Stephen Cipot, USEPA John Prendergast, BEERA George Blyskun, BGWPA



Appendix B Summary Tables of Historical DEHP Soil Results

TABLE 2-7 ANALYTICAL RÉSULTS SUMMARY - HOT SPOT 1

Sample ID	HS1-PES-1	HS1-PES-2	HS1-PES-3	HS1-PES-4	HS1-PES-5	HS1-PES-6
Lab Sample Number	16676	16677	16678	16679	16680	16681
Sampling Date	11/30/94	11/30/94	11/30/94	11/30/94	11/30/94	11/30/94
Dilution Factor	1.0	200.0	200.0	5.0	1.0	1.0
Depth (ft)	8.0 - 8.5	8.5 - 9.0	7.0 - 7.5	8.0 - 8.5	3.0 - 3.5	8.0 - 8.5
Units	mg/kg	mg/kg	mg/kg	" mg/kg	mg/kg	mg/kg ·
SEMIVOLATILE CON	APOUNDS (GC.					
DEHP	1.2	470	590	17	0.92	1
		·	• •,			
Sample ID	FB 1130	HS1-PES-10	HS1-PES-11	HS1-PES-12	HS1-PEB-1	12-6-FB
Lab Sample Number	16682	17086	17087	÷ 17088	17089	17090
Sampling Date	11/30/94	12/6/94	12/6/94 =	12/6/94	12/6/94	12/6/94
Dilution Factor	1.0	2.0	200.0	·· ··200.0 ··	50.0	1.0
Depth (ft)	NA	8.0 - 8.5	8.0 - 8.5	8.0 - 8.5	8.0 - 8.5	NA 1
Units	ug/l	mg/kg	mg/kg	mg/kg	mg/kg	ug/l ~
SEMIVOLATILE CON	POUNDS (GC	/MS)				
DEHP	4.3	4.6	790	500	170	1.3 U
	-			• •		
Sample ID	HS1-PES-20	HS1-PES-21	12-12-FB1	HS1-PES-30	HS1-PEB-20	12-26-FB
Lab Sample Number	17499	17500	. 17503	17886	17887	17889
Sampling Date	12/12/94	12/12/94	12/12/94	12/16/94	12/16/94	12/16/94
Dilution Factor	100.0	100.0	1,0	50.0	100.0	1.0
Depth (ft)	11.5 - 12.0	11.5 - 12.0	NA .	8.5 - 9.0	8.5 - 9.0	NA ····
Units	mg/kg	mg/kg	ug/l	um/kg	mg/kg	ug/l
SEMIVOLATILE COM	POUNDS (GC/	MS)				· -
DEHP	350	370	1.2 U	140	320	1.2 U
Sample ID	12-20-FB	HS1-PES-40	HS1-PEB-30	HS1-PES-41		
Lab Sample Number	18111	18112	18113	18114	REMEDIAL	
Sampling Date	12/20/94	12/20/94	12/20/94	12/20/94	GOAL AS	
Dilution Factor	1.0	1.0	100.0	1.0	SPECIFIED	
Depth (ft)	NA	8.5 - 9.0	8.5 - 9.0	8.5 - 9.0	IN THE ROD	
Units	ug/l	mg/kg	mg/kg	mg/kg		
SEMIVOLATILE COM	POUNDS (GC/	MS)				
DEHP	7.0 B		- 400	0.73	100	į.

 $\underline{\mathsf{DEHP}} = \underline{\mathsf{b}}\mathsf{is}(2-\mathsf{ethylhexyl})\mathsf{phthalate}$

Concentration exceeds Site Specific Remedial Goal

NA - not applicable

U - indicates compound not detected at concentration noted

Sample ID		
Lab Sample Number	HS1-PEB-1	REMEDIAL
Sampling Date	17089	GOAL AS
Dilution Factor	12/6/94	SPECIFIED IN
	5000.0	EITHER THE
Depth (ft) Units	8.0 - 8.5	ROD OR NJ
land the second	mg/kg	CLEANUP CRITERIA
VOLATILE COMPOUNDS (GC)	5 19 10 10 10 10 10 10 10 10 10 10 10 10 10	
Chloromethane *	14 U	10
Bromomethane *	14 U	1
VinylChloride *	14 U	10
Chloroethane	14 U	NLE
Methylene Chloride *	14 U	1
Trichlorofluoromethane	14 U	NLE
1,1-Dichloroethene *	14 U	10
1,1-Dichloroethane *	14 U	10
trans-1,2-Dichloroethene	14 U	50
cis-1,2-Dichloroethene •	14 U	1
Chloroform *	14 U	1
1,2-Dichloroethane *	14 U	1
1,1,1-Trichloroethane	14 U	50
CarbonTetrachloride *	14 U	1
Bromodichloromethane *	14 U	1
1,2-Dichloropropane *	14 Ü	10
cis-1,3-Dichloropropene * (a)	14 Ü	1
Trichloroethene *	14 U	1
Dibromochloromethane *	14 Ü	1
1,1,2-Trichloroethane *	14 U	1
Benzene *	14 U	1
trans-1,3-Dichloropropene • (a)	14 U	1
2-Chloroethyl vinyl ether	14 U	NLE
Bromoform *	14 U	1
Tetrachloroethene *	14 U	1
1,1,2,2-Tetrachloroethane *	14 U	
Toluene	2200	500
Chlorobenzene *	14 U	1
Ethylbenzene	63	100
Xylene(Total)	350	10
Total Estimated Volatile Organic	entatively Identified Co	ompounds /TICs\
	148000	Suiboning (TICS)
	170000	{N

Concentration exceeds Site Specific Remedial Goal

NLE - indicates no limit extablished

U - indicates compound not detected at concentration noted

• - Detection limit exceeded Cleanup Criteria

(a) Values listed reflect the combined standards for the cis and trans isomers of 1,3-Dichloropropene

Table 2-6 Analytical Results Summary For Soils DEHP (mg/kg) L.E. Carpenter, Wharton, New Jersey Hot Spot 1

Sample ID	Sample Date	Lab sample ID	Sample Depth	USCS Soil Type	Result	Qualifier
B1-1	05/13/96	9605L215-002	8.1 - 8.6	SW	14	E
B1-1	05/13/96	9605L215-002	8.1 - 8.6	SW	27	D
B1-2	05/13/96	9605L215-003	10.3 - 10.8	SW	64	E
B1-2	05/13/96	9605L215-003	10.3 - 10.8	SW	150	D
B2A-1	05/14/96	9605L233-001	8.8 - 9.3	ML/SW	27	E
B2A-1	05/14/96	9605L233-001	8.8 - 9.3	ML/SW	39	D
B2A-2	05/14/96	9605L233-002	12.0 - 12.5	SW	36	E
B2A-2	05/14/96	9605L233-002	12.0 - 12.5	SW	220	D
B3-1	05/14/96	9605L233-003	7.0 - 7.7	GP	25	E
B3-1	05/14/96	9605L233-003	7.0 - 7.7	GP	49	D
B3-2	05/14/96	9605L233-004	11.2 - 11.6	SP	100	E
B3-2	05/14/96	9605L233-004	11.2 - 11.6	SP	790	D
84-1	05/14/96	9605L233-005	6.0 - 6.8	SW	24	E
B4-1	05/14/96	9605L233-005	6.0 - 6.8	SW	47	۵
B4-2 (duplicate)		9605L233-006	6.0 - 6.8	SW	36	E
B4-2 (duplicate)	05/14/96	9605L233-006	6.0 - 6.8	SW	130	D
B5-1	05/14/96	9605L233-007	8.0 - 8.5	SP/GP	23	E
B5-1	05/14/96	9605L233-007	8.0 - 8.5	SP/GP	40	D
B6-1	05/14/96	9605L233-008	6.3 - 6.8	SŴ	6.8	E
B6-1	05/14/96	9605L233-008	6.3 - 6.8	SW	5.7	D
B6-2	05/14/96	9605L233-009	8.0 - 8.5	SW	2.6	
	05/13/96	9605L215-004	NA	NA	8	J
FB-04S*	05/14/96	9605L233-010	NA	NA	18	В

Notes:

DEHP = bis(2-ethylhexyl)phthalate

E - Concentration exceeded the instrument calibration range and was subsequently diluted.

- D Compound analyzed at a dilution.
- B Compound was found in the blank and the sample.
- * Field blank sample reported in microgram per liter (ug/l).

mg/kg - milligram per kilogram.

- indicates an exceedance of the remedial goal of 100 mg/kg as specified in the ROD.

NA - Not Applicable

Sample depth presented is in feet below grade.

B4-2 is a duplicate sample of B4-1.



Appendix C Well Permits, Soil Boring/Well Construction Logs, Well Development Information, Survey Maps

				LO	IG OI	FIESI	Ð	JRING	BORING NO.		MW19-1	
	KMI	-							SHEET NO			
_ F	PROJE	OJECT NAME L. E. Carper						nter	PROJECT NO			
lι	LOCAT	ION	l			Warton,	NJ		INSTALLATIO			
(CONTRACTOR Aquifer Testing &						1g &	Drilling	SURFACE EL			
	DRILLIN	1G	METHOD			Air Rota	ry H	ammer	BOREHOLE D)IA	10 IN.	
			SAMPLIN	IG NO	OTES			VISITAL	CLASSIFICAT	ION		WELL
IN	TERVA	L	RECO\	/ERY	PID	DEPTH		AND GENE	*		S [*]	NS KEI
NO	. TYP	E	N	IN	ppm	DEFIN	ж ,					> 0
								GRASS/TOPSOIL				
							a					4 -
							0 0					4
				,		_	ام					
	ss	1					000					
			07.00	4.4	1 0	_	0	WELL GRADED S	AND WITH SIL	T ANI	GRAVEL	
A			27-20 12-8	14	1.0		000	(SP-SM), brown,	moist.			
	-	4	12-0			_	o D	1				
	SS	1					اه ام					
В			22-12	6	1.7	5	0	SAME AS ABOVE	•			
"		1	12-8		'''		000					
L	ss	A A				-	0	•				
	33	¥					000	,			•	
C		1	14	4	0.4	-		SAME AS ABOVE	, cobble in spo	oon tip).	
4 ~			100/4		•••		اه[و] مامر					
	ss	T T					: l:01					
		1										
م ا		3	100/2	3	1.2	골 -	. σ α	SAME AS ABOVE	, cobble in spo	oon tip	, moist to	
		F				-	0.0	wet.				
	ss	1				10-						
		T.										
E			50/0	0			0	NO RECOVERY	•			
		THE STATE OF THE S					اه ه					
	ss	The second				+	, ,					
							Þ.				(6)40	
F			100/1	2	23		0,0	WELL GRADED S.		AVEL	(SW),	
		Fig.					0.0	brown, wet, hydr				
	ss	1				-		_ _ _ _				
		J Parr									 ! d	
G		11	11-11	12	0.2	15		POORLY GRADED red-brown and bla) SAND (SP), \	very til	ne grained, own	
		. III	5-3					matrix.	sov igitimia III II	a DI	J	
ļ						-			BORING AT	6 FEE	:1	
		!-	GENERA	AL NO					R LEVEL OBS			
	TE ST			<u> </u>				WHILE DRILLING	=			
∯ DA			LETED _				_	AT COMPLETION	¥			
RIC			Reach					AFTER DRILLING		-	COT!!	
≧ CR								CAVE-IN: DATE/TIME		<u>_</u>	EPTH	
퇿 LO	GGED	E	.M.V	CHE	CKED	S.C.		WATER: DATE/TIME		D	EPTH	

				LC	G O	F TEST	F BORING BORING NO. MW19-2	
	25	ZMT	e.				SHEET NO OF	-
	-	WILL.	T NIA NÆE			LEG		-
	P	ROJECI	NAME _			Marton		-
	LC	CATIC	OTOR		Λ	vvarion;	NJ INSTALLATION 2/17/98 ng & Drilling SURFACE ELEV	-
	C	CONTRACTOR Aquiter Tesus				A:- Date	ary Hammer BOREHOLE DIA. 10 IN.	-
	DRILLING METHOD Air Rotary					Air hola	the the control of the second control of the contro	-
			SAMPLIN			1	VISUAL CLASSIFICATION	WELL
	.,,,,,	ERVAL		•	1	DEPTH	AND GENERAL OBSERVATIONS	
	NO.	TYPE	N	IN	ppm			<u> </u>
		SS			•		GRASS TOP SOIL	-
	А		9-8 7-8	12	0.0		WELL GRADED SAND WITH SILT AND GRAVEL (SW-SM), red-brown.	= //
	В	- SS	7-9 13-37	4	0.0	-	WELL GRADED SAND WITH GRAVEL (SW), light brown, red-brown at about 3.8 ft, moist.	
	С	- SS	3-5 5-4	16	0.0	5	WELL GRADED SAND WITH SILT AND GRAVEL (SW SM), red-brown, moist, with rootlets.	
	D	SS	10 10 10 10 10 10 10 10 10 10 10 10 10 1	14	2.6	_	SAME AS ABOVE	
	E		7-9 14-16	6	0.0	¥	SAME AS ABOVE, moist to wet, cobble in spoon tip.	
•	F	SS	19 50/5	2	0.0	10-	WELL GRADED SAND WITH GRAVEL (SW), red-brown, wet.	
	G	SS	6-7 8-9	0		-	NO RECOVERY	
	Н	SS	11-12	6	71	15	SAME AS ABOVE, gray to black.	
		1					END OF BORING AT 16 FEET	
			GENERA	I NO	TEC	<u> </u>	WATER LEVEL OBSERVATIONS	
86		_ ~~	_			00		
4.10-98			RTED				WHILE DRILLING	
			PLETED _					
38683			Reach				AFTER DRILLING	
JEBW :			F				CAVE-IN: DATE/TIME DEPTH	
Nace	LOG	GED	E.M.V.	CHE	CKED	<u>s.c.</u>	WATER: DATE/TIME DEPTH	

	LOG O	- IESI B	ORING	BORING NO	MW-11DR
17 /7/1				SHEET NO1	OF 5
PROJECT NAM	1E	L. E. Came	enter	PROJECT NO.	3868.03
LOCATION	.	Warton, NJ		INSTALLATION _	2/20/98
CONTRACTOR	Agui	fer Testing	& Drilling	SURFACE ELEV.	•••
DRILLING MET	HOD	Air Rotary I	Hammer	BOREHOLE DIA.	10 IN/6 IN.
	IPLING NOTES			CLASSIFICATION	SA
INTERVAL RE	COVERY PID	DEPTH		RAL OBSERVATION	vs E
NO. TYPE	IN ppm	DLI III	a		
B SS D SS D SS	6 3 0/3 4 6 6 6 6 6 6 9 NERAL NOTES	10 25		SAND (CL), little own. AND WITH GRAVE sand. AND (SW), with trace amount of coarse grained so coarse grained so 18.5 feet below grained so R LEVEL OBSERVA	to some L (SW), fine ace to little and.
DATE STARTED	2-16	-98	WHILE DRILLING		
DATE COMPLETE			AT COMPLETION	<u> </u>	
RIG RIG			AFTER DRILLING		S. F.O.T. !
DATE STARTED DATE COMPLETE RIG RIG RIG CREW CHIEF LOGGED E.M.\			l		DEPTH
튊 LOGGED E.M.\	. CHECKED	S.C.	WATER: DATE/TIME		UEP 1 7

	LOG O	F TEST I	BORING	BORING NO.	MW-11DP	
1 - NAT				SHEET NO2		
DROJECT NAME		i E Cam	enter			
LOCATION		Warton N	enter	INSTALLATION _		
CONTRACTOR	Agu	ifer Testina	& Drilling	SURFACE ELEV.		_
DRILLING METHOD		Air Rotary	Hammer	BOREHOLE DIA	10 IN/6 IN.	-
	IG NOTES		The second secon	CLASSIFICATION		L
	/ERY PID	DEPTH		RAL OBSERVATION	1S	WELL
NO. TYPE N	IN ppm	DEPIR	AND GENE		-	20
SS 🔻				SDANGE NAGEL CAND) (CM) fine	
	10		WELL GRADED Government of the coarse gravel,	RAVEL WITH SAND coarse sand.	(GVV), line	
		ja.				
		0				
		- 7:	d			
		35	å ₫			
			و ا			
		- O				
SS	, l	40-0	SAME AS ABOV			
J	24	1 40	o		-	
		- 2				
		-	0			
3		1 - 1/2				
SS T		45	SAME AS ABOV	E		
	20	-8		•		
K	20	-5	0			間
T		- 6	* d			
=			Ø 20			
		50	SAME AS ABOV	F		
SS 📮		<u> </u>	SAIVIL AS ADOV	•		間
	16	_ S	[e]			
			ġ			
		<u>]</u> 6	<u> </u>			
			0			-
ss 🗓		55-0				
M	24	- C	0			
		1 = 100	POORLY GRADE	D GRAVEL (GP)		
		1	TOURLI GIMBE	- 01217LL (01/		-
		-				-
SS		60	SAME AS ABOV	E		=
86. N	24) d			-
Z Z	- '	-18				-
8683		-6			•	-
N31BW 38683		-	-0			
8167		65				4

			æ.	LC	G O	FTEST		MW-11DR			
	-7	MI.						3 OF 5			
	PF	OJEC.	T NAME _			L. E. Ca	penter PROJECT N	O. <u>3868.03</u>			
	LC	CATIC	OTOB		Λ αν.	warton,	IJ INSTALLAT SURFACE E	EV			
	D:	211 I INC	METHOD)	Aqui	Air Rota	y Hammer BOREHOLE	DIA. 10 IN/6 IN.			
		ULLIN	SAMPLIN			701 11015		i c			
	INITE	RVAL					VISUAL CLASSIFICA				
		TYPE	, 	IN	ppm	DEPTH	AND GENERAL OBSERVATIONS				
N3LBW 38683 4-10-98	0	DM		18		70— 	SAME AS ABOVE, with clayey spoon tip. NOTE: the driller believes that samples may be biased with to settling when the mud pumprior to collecting split spoon so description from below 72 feet cutting observation. FINE TO COARSE SAND, little (DM means drilling mud sample) SAME AS ABOVE	fragments in the split spoon o much gravel due o is turned off ample. All soil is from mud			

			LO	G O	FTEST	BORING	BORING NO.	MW-11DR	
	KMT."	•					SHEET NO. 4	OF5	
	PROJECT NAME L. E. Carpenter					menter	PROJECT NO	3868.03	
[LOCATION Warton, NJ				NJ	INSTALLATION _	2/20/98		
	CONTRACTOR Aquifer Testing & Drilling DRILLING METHOD Air Rotary Hammer				g & Drilling	SURFACE ELEV.	10 IN/6 IN		
<u> </u>	SAMPLING NOTES				Air Kotai	y nammer	BONEHULE DIA.	10 114/6 114.	1 ~
1		7					CLASSIFICATION		WELL
	TERVAL TYPE	RECO\	IN		DEPTH	AND GENE	RAL OBSERVATION	18	WEL!
NO	- DM		117	ррги	105	SAME AS ABOVI	=		
	DM				115	SAME AS ABOVI	≡		
N3LBW 38883 4-10-98					125	SAME AS ABOVE			
N3LBW 38	DM				135	SAME AS ABOVI	.		

PROJECT NAME L. E. Carpenter PROJECT NO. LOCATION Warton, NJ INSTALLATION CONTRACTOR Aquifer Testing & Drilling SURFACE ELEV. DRILLING METHOD Air Rotary Hammer SAMPLING NOTES INTERVAL RECOVERY PID NO. TYPE N IN ppm SHEET NO. 5 SHEET NO. 5 VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS AND GENERAL OBSERVATIONS	MW-11DR	
LOCATION Warton, NJ INSTALLATION OF CONTRACTOR Aquifer Testing & Drilling SURFACE ELEV. DRILLING METHOD Air Rotary Hammer BOREHOLE DIA. SAMPLING NOTES INTERVAL RECOVERY PID DEPTH AND GENERAL OBSERVATIONS	_ OF <u>5</u>	
CONTRACTOR Aquifer Testing & Drilling SURFACE ELEV. DRILLING METHOD Air Rotary Hammer BOREHOLE DIA. SAMPLING NOTES VISUAL CLASSIFICATION AND GENERAL OBSERVATIONS	3868.03	
DRILLING METHODAir Rotary HammerBOREHOLE DIA SAMPLING NOTESVISUAL CLASSIFICATION INTERVAL RECOVERY PID AND GENERAL OBSERVATIONS		
SAMPLING NOTES INTERVAL RECOVERY PID DEPTH AND GENERAL OBSERVATIONS	10 IN/6 IN.	
INTERVAL RECOVERY PID DEPTH AND GENERAL OBSERVATIONS		<u>E</u>
IDEPTH AND GENERAL OBSERVATIONS	WELL	S
	· >	Ö
DM 2 145—SAME AS ABOVE 155— Miles Miles	165 feet.	



PROJECT NAME :	L. E. Carcenter	
PROJECT NO. :	3868_03	
LOCATION:	Title and an NTT	
	2/17/98	
WELL NO.		
PREPARED BY:	Eric VanHyde	

		نس یسر	- GONCRETE	1) CASING DETAILS
_	TOP OF WELL CASING ELEVFT.	ν εί ζ /	SEAL/PAD	A) TYPE OF PIPE
			-	PVC //STAINLESS / TEFLON / OTHER
	CROUND SURF.		DEPTH FROM GROUND SURF.	PIPE SCHEDULE
•	ELEV.		, 	PIPE DIAMETER I.D. $\frac{4}{}$ In., 0.0
		~×/-	<u>.5</u> fr.	B) TYPE OF PIPE JOINTS:
;	BENTONITE: PELLETS/GRANULAR/POWDER			SLIP / THREADED (N. CAPE 2) / OTHER
			F	SOLVENT CEMENT: YES OR (NO)
				C) TYPE OF WELL SCREEN:
	BACKFILL MATERIAL	<u> </u>		PVC / (STAINLESS / TEFLON / OTHER
PIPE	Portland Cement w/ 5% Bentonite	[4] [3]		SLOT SIZE:IN.
	3/0 2030		<u>8</u> _FT.	SCREEN DIA: LO. IN C.O. IN
Solin				D) INSTALLED PROTESTOR PIPE W/LOCK ? (YES OR NO
_8_F. ;		[1]		PROTESTOR PIPE CIA IN. LCCK NO
ПЕНСІН	BACKFILL METHOD: PIPE TREMIE/AUGER TREMIE/			2) WELL DEVELOPMENT
רנא	CRAVITY FILLED		_2F.	A) METHOO
			,	EALUNG/PUMPING/SURGING/COMPRESSED AIR/OTHER
	BENTONITE:			
	PELLETS/GRANULAR/FOWDER		<u>4</u> FT.	B) TIME SPENT FOR DEVELOPMENT
•				C) APPROXIMATE WATER VOLUME: REMOVED
	SILICA SAND:			AG050
			200	D) WATER CLARITY:
1	FILTER PACK		_ 6 FT.	BEFORE DEVELOPMENT -
TO IT SCREEN	#1 Unimin Sand		 	CLEAR / TURBID / GPAQUE
	#1 Onlinin Sand			AFTER DEVELOPMENT -
				CLEAR / SLIGHTLY TURBID / TURBID / CPAQUE
WELL.	Y WELL BOTTOM		16F.	E) ODOR ? YES OR NO
_			<u>17 </u>	3) WATER LEVEL SUNMARY
	SEAL MATERIAL	-		A) DEFTH FROM TOP OF CASING AFTER DEVELOPMENT ?
		· - · · ·		FT. OR DRY
				B) OTHER MEASUREMENTS (T.O.C.):
	BACKFILL MATERIAL: -		Fī.	DATE / TIME
				CATE / TIME
				DATE / TIME
		Six-inc	h sump in	well bottom. Therefore
,	ADDITIONAL COMMENTS:			5÷15.5 ft. BGL
			acreen e o) - 13.3 10. BOH



PROJECT NAME :	L. E. Carbente.	
PROJECT NO. :	2060 02	
LOCATION:	11.7	
DATE INSTALLED :	2/17/98	
WELL NO.	MW-19-2	
DDEDADED BY	Eric VanHyde	

			CONCRETE	1) CASING DETAILS
	TOP OF WELL CASING ELEVFT. \[\text{TF}	च्र / ः	SEAL/PAD	A) TYPE OF PIPE:
T				PVC / ETAINLESS / TEFLON / OTHER
	CROUND SURF.	J	DEPTH FROM CROUND SURF.	PIPE SCHEDULE
	ELEV. FT.	KKK	CASSING SOM.	PIPE DIMETER I.D. 4 IN., C.D. IN.
	2021.		Fī.	B) TYPE OF PIPE JOINTS:
	BENTONITE: PELLETS/GRANULAR/POWDER		,	SUP / (THREADED) (WARFE ?) / OTHER
	FEEDING OF THE PROPERTY OF THE		FT.	SOLVENT CEMENT: YES OR (NO)
		[-]		C) TYPE OF WELL SCREEN:
	BACKFILL MATERIAL:	[.]		PVC / (STAINLESS / TEPLON / OTHER
سٍ	Portland Cement : w/ 5% Bentonite			SLOT SIZE O. O 1 N.
置	w/ 5% Bentonite	}-	<u>8</u> FT.	SCREEN CIA.: I.D. IN O.D. IN
SOLID PIPE	1.1			D) INSTALLED PROTECTOR PIPE W/LOCK ? (TESTOR NO
_8_FI. V	[.]			PROTECTOR PIPE CIA _6_ IN. LOCK NO
1	BACKFILL METHOD: PIPE TREME/AUGER TREME/	-		2) WELL DEVELOPMENT
LENCIL	CRAVITY FILLED	1.1	2_5.	A) METHOD
-				BAUNG/PUMPING/SURGING/COMPRESSED AIR/OTHER
İ	BENTÓNITE:			
	PELLETS CRANULAR POWDER		<u>4</u> FT.	B) TIME SPENT FOR DEVELOPMENT
		X	P 1 •	C) APPROXIMATE WATER VOLUME: REMOVED
	SIUCA SANO:			ACCED
			**;	
				D) WATER CLARITY:
	FILTER PACK		<u> </u>	BEFORE DEVELOPMENT -
	#1 Unimin Sand	-1::		CLEAR / TURBID / OFACUE
10 FT. SCHEEN				AFTER DEVELOPMENT -
WELL LEB				CLEAR / SLICHTLY TURBID / TURBID / OPAQUE
₹	WELL BOTTOM		<u> 16 </u> г.	E) ODOR ? YES OR NO
			<u>16</u> гт.	J) WATER LEVEL SUMMARY
	SEAL MATERIAL		FT.	A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT ?
		- \ _		FT. OR DRY
				B) OTHER MEASUREMENTS (T.O.C.):
	BACKFILL MATERIAL:		fī.	DATE / TIME
•				DATE / TIMEDEFTH
				DATE / TIMEDEPTH
		No su	am.	
	ADDITIONAL COMMENTS:		**	
			1	



PROJECT NINE :	L. E. Cardense.	
PROJECT NO. :	3868.03	
LOCATION:	Wharton, NJ	
DATE INSTALLED :	2/18/98	
WELL NO.	MW-19-3	
	Eric VanHyde	·

				- CONCRETE	1) CASING DETAILS
		TOP OF WELL CASING ELEVFT.	7 57 /	SEAL/PAO	A) TYPE OF PIPE
	T		/ قا		PVC / STAINLESS / TEFLON / OTHER
	Ī	enguna CISS] f	DEPTH FROM CROUND SURF.	PIPE SCHEDULE
		CROUND SURF.		SS CACONO SURF.	PIPE DIAMETER LO. 4 IN., C.OIN.
	į	·	2000 F. W.		B) TYPE OF PIPE JOINTS:
		BENTONITE:			SUP / THREADED (W CHE ?) / OTHER
	- 1	PELLETS/GRANULAR/POWDER		FT.	SOLVENT CEMENT: YES OR TO
					C) TYPE OF WELL SCREEN:
	١	BACKFILL MATERIAL	→ 1 []		PVC /STAINLESS / TEFLON / OTHER
		Portland Cement			
	PIPE	w/ 5% Bentonite		8_ศ.	SLOT SIZEO OI IN.
	SOLID		14 14	- 1 ₄₀	SCREEN CILL: LD. IN 0.D. IN
<u>8</u> FT.	1				D) INSTALLED PROTECTOR PIPE W/LOCK ? YES OR NO PROTECTOR PIPE DIA 6 IN. LOCK NO
	9	BACKFILL METHOD:	11 14		
	ENCTH	PIDE TREME AUGER TREME/ CRAVITY FILLED	14 [4	2	2) אָפּיַ פּנְיפַנסףאבאַד
•	9			2 FT:	A) METHOD
;					BAILING/PUMPING/SURGING/COMPRESSED AIR/OTHER
		BENTONITE:			
	1	PELLETS (GIOGRADO S) 1 ONO SI		4FT.	B) TIME SPENT FOR DEVELOPMENT
•					C) APPROXIMATE WATER VOLUME: REMOVED
	l	SILICA SAND:			ADDED
				- ;	D) WATER CLARITY:
	Ť	_ FILTER PACK		<u> 6 </u> п.	BEFORE DEVELOPMENT -
	= 1	MATERIAL:			CLEAR / TURBID / OPACUE
10 FT.	≝ = 1	#1 Unimin Sand			AFTER DEVELOPMENT -
	25		::F= <u> </u> :3		CLEAR / SUICHTLY TURBID / TURBID / OPAQUE
	WELL	WELL BOTTOM	13F-33	16 Fi.	E) COOR ? YES OR NO
	_'	_ E.V	(/E.#.)	15_07.	3) WATER LEVEL SUNJUARY
		SEAL MATERIAL:	→	· · · · · ·	A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT ?
			100	F.	FT. OR DRY
					B) OTHER MEASUREMENTS (T.O.C.):
		BACKFILL MATERIAL:			DATE / TIMEDEPTH
				FT-	DATE / TIMEDEPTH
			•		DATE / TIMEDEPTH
					with 1 mine
			C II . C	المعارة وسيدان	om Thoroforo actual
		ADDITIONAL COMMENTS:	•		om. Therefore actual
			screen @	9 6-15.5 ft.	BGL
			 		
					No. of the second secon



PROJECT NAME : _	L. E. Carpenne	
PROJECT NO. :	3868.03	
	Wharton, N.I	
DATE INSTALLED :	2/18/98	<u> </u>
	MW-19-4	
	Eric VanHyde	

		man an well		CONCRETE	1) CUSING DETAILS
		TOP OF WELL CASING ELEVFT.	<u> </u>	SEAL/PAD	A) TYPE OF PIPE:
	. T				PVC / STAINLESS / TETLON / OTHER
	Ī)	DEPTH FROM	PIPE SCHEDULE
		CROUND SURF.	THE STATE OF THE S	CROUND SURF.	PIPE DUMETER I.D. 4 IN. 0.DIN.
		:		FI	
		BENTONITE:			B) TYPE OF PIPE JOINTS:
	l	PELLETS/GRANULAR/POWDER		_	SUP / (HREADED) (HYTAPE ?) / OTHER -
			- 88	Fī.	SOLVENT CEMENT: YES OR (NO)
			1:1 1-1		C) TYPE OF WELL SCREEN:
	1	BACKFILL HATERIAL:			PVC (STAINLESS) / TEFLON / OTHER
	ш	Portland Cement			SLOT SIZEO OL IN.
	PIPE	w/ 5% Bentonite	≥ - -	8_FT.	SCREEN DIA: LD. IN C.D. IN
	SOLID		13 14		
8_5.					D) INSTALLED PROTECTOR PIPE W/LOCK ? (YES OR NO
	9	0.00	1-1 (1)		PROTESTOR PIPE DIA 6 IN. LOCK NO
	LENGTH	BACKFILL METHOD: PIDE TREMIE/AUGER TREMIE/			2) WELL DEVELOPMENT
	Ž	CRAVITY FILLED		<u>2 FT.</u>	A) METHOD
					BAILING/PUMPING/SURGING/COMPRESSED AIR/OTHER
	-		·		
	.	BENTONITE: PELLETS/GRANULAR/POWDER		4 -	B) TIME SPENT FOR DEVELOPMENT
	ł		28 (X)	<u>4</u> FT.	•
•					C) APPROXIMATE WATER VOLUME: REMOVED
	İ	SILICA SAND:		Tak.	AULU
					D) WATER CLARITY:
	İ			6Fī.	BEFORE DEVELOPMENT -
		_ FILTER PACK NATERAL:			CLEAR / TURBIO / OPAQUE
	8 4	#1 Unimin Sand			
_10 ==.	SCH				AFTER DEVELOPMENT -
	WELL				CLEAR / SLIGHTLY TURBID / TURBID / OPAQUE
	¥ 1	WELL BOTTOM		16 77.	E) ODOR ? YES OR NO
		_ 8.5v	******	F.	3) WATER LEVEL SUMMARY
		SEAL MATERIAL:		FT.	A) DEPTH FROM TOP OF CASING AFTER DEVELOPMENT ?
			7		FT. CR DRY
			1.15		B) OTHER MEASUREMENTS (T.O.C.):
		BACKFILL MATERIAL		,	CEPTH
				F.	DATE / TIME
					UAIL / IIML
					DATE / TIME
			An Car	നു ഒ യുടി 1	bottom. Therefoe actual
		ADDITIONAL COMMENTS:	scree	n is $0.6-1$	5.5 ft. BGL
				_	
			· · · · · · · · · · · · · · · · · · ·		



PROJECT NAME : .	L. E. Carbenne	
PROJECT NO. : _	3868.03	
LOCATION:	Wharton, NJ	
DATE INSTALLED :	2/18/98	
WELL NO.	MW-19-5	
PREPARED BY:	Eric VanHyde	

		TOP OF WELL CASING ELEYFT.		7 T	CONCRETE SEAL/PAD	1) CASING DETAILS A) TYPE OF PIPE:
		CROUND SURF.			DEPTH FROM CROUND SURF.	PVC / STAINLESS / TEFLON / OTHER PIPE SCHEDULE PIPE DIAMETER I.DIN. O.DIN.
		BENTONITE: PELLETS/GRANULAR/POWDER		,	Fi.	B) TYPE OF PIPE JOINTS: SUP / THREADED (W/JAFE ?) / OTHER SOLVENT CEMENT: YES OR NO
•	SOLIO PIPE	Portland Cement w/ 5% Bentonite			<u>8</u> FT.	C) TYPE OF WELL SCREEN: FVC / STAINLESS / TEFLON / OTHER SLOT SIZED_Ol in. SCREEN DIA: LD. IN O.D. IN D) INSTALLED PROTECTOR PIPE W/LOCK ? YEE OR NO
<u>8</u> FT.	LENCTH OF	BACKFILL METHOD: PIDE TREMIE/AUGER TREMIE/ CRAVITY FILLED		<u> </u>		PROTECTOR PIPE DIA 6 IN. LOCK NO 2) WE'L DEVELOPMENT A) METHOD BAILING/PUMPING/SURGING/COMPRESSED AIR/OTHER
-		PELLETS CRANULARY FOWDER		:: ::	4FT.	B) TIME SPENT FOR DEVELOPMENT
		SILICA SAND:			<u>6. F.</u>	D) WATER CLARITY: BEFORE DEVELOPMENT -
_10 ਜ.	SCREEN	_ FILTER PACK MATERIAL: #1 Unimin Sand			F1.	CLEAR / TURBID / OPAQUE AFTER DEVELOPMENT -
	WEIL	WELL BOTTOM ELEV. SEAL MATERIAL			16 FT.	CLEAR / SUICHTLY TURBID / TURBID / OPAQUE E) ODOR ? YES OR NO 3) WATER LEVEL SUMMARY A) DEFTH FROM TOP OF CASING AFTER DEVELOPMENT ?
		BACKFILL MATERIAL:			Fī.	TI. OR DRY B) OTHER MEASUREMENTS (T.O.C.): DATE / TIME
		ADDITIONAL COMMENTS:	6" Su	ump in	well bot	ttm, therefore actual



WELL DEVELOPMENT RECORD

			•					
PRC	JECT NA	ME: <u>L.E</u>	. Carpentei	<u>:</u>	WELL I	NUMBER: 1	∕IW-19-1	
PRC	JECT NU	MBER:_		3868.03	WELL I	DIAMETER	: <u>4 "</u>	
DA	ΓE:	2/27	7/98		SAMPI	LER: ENVIR	COTECH	
Тур	e Of Pumj	p Used:	Wha	ler Pump				
Pun	ping Rate	gallon/1	minute):	2 gpm		<u></u>		
Wat	er level be	fore pur	ging (neare	st 0.01 ft. be	low refere	nce point) 1	0.44 feet	
Dep	th to botto	om of wel	ll (obtained	l from well	logs) <u>17.98</u>	<u> feet</u>		
Calc	ulated vo	lume of v	vater in cas	ing	5 Gallo	ns (1 Volum	e)	
Wea	ther cond	itions	· ·	N/A			·	
ate	* Well : Volume	a pH	Turbidity	Condu	ctivity 🚕 🏅	Temperature	Pump Depth	Cumulative
			(עדע)		uS/cm		2004	- Volume; ==
	(gal)	1900 (以表現場) A.A.	a. But not betrom whatten	Uncorrected	Corrected	(°C)	(0.01 ft.)	(gal) 5
7/98	1	8.92	Moderate	584	381 377	53.0 53.0	11	15
7/98	3	8.92	Moderate Moderate	579 576	377	52.6	15	25
7/98	5	8.92			352	52.4	16	35
7/98	7	8.91 8.91	High	536 527	346	52.4	17	45
7/98	9	9.91	High	527	340	52.4		45
			<u> </u>	The second secon				
					, sq.			<u></u>
		,						
			······································				· .	
								
						DINGS ARE WI TURBIDITY ±10		LOWING
						, <i>'</i>		
Signe				Data	OC'd By	 	Doto	



WELL DEVELOPMENT RECORD

Volume Units: uS/cm	
DATE:	
Type Of Pump Used: Whaler Pump Pumping Rate (gallon/minute): 2 gpm Water level before purging (nearest 0.01 ft. below reference point) 10.56 feet Depth to bottom of well (obtained from well logs) 18.03 feet Calculated volume of water in casing 5 Gallons (1 Volume) Weather conditions N/A Date Well PH Turbidity Conductivity Temperature Pump Depth Volume	
Pumping Rate (gallon/minute): 2 gpm Water level before purging (nearest 0.01 ft. below reference point) 10.56 feet Depth to bottom of well (obtained from well logs) 18.03 feet Calculated volume of water in casing 5 Gallons (1 Volume) Weather conditions N/A Pate Well Ph Turbidity Conductivity Temperature Pump Depth Units: uS/cm	
Water level before purging (nearest 0.01 ft. below reference point) 10.56 feet Depth to bottom of well (obtained from well logs) 18.03 feet Calculated volume of water in casing 5 Gallons (1 Volume) Weather conditions N/A Pate Well PH Turbidity Conductivity Temperature Pump Depth Units: uS/cm	
Water level before purging (nearest 0.01 ft. below reference point) 10.56 feet Depth to bottom of well (obtained from well logs) 18.03 feet Calculated volume of water in casing 5 Gallons (1 Volume) Weather conditions N/A Date Well PH Turbidity Conductivity Temperature Pump Depth Units: uS/cm	
Depth to bottom of well (obtained from well logs) 18.03 feet Calculated volume of water in casing 5 Gallons (1 Volume) Weather conditions N/A Date Well PH Turbidity Conductivity Temperature Pump Depth Units: uS/cm	
Calculated volume of water in casing 5 Gallons (1 Volume) Weather conditions N/A Pate Well PH Turbidity Conductivity Temperature Pump Depth Units: uS/cm	
Weather conditions N/A Oute Well PH Turbidity Conductivity Temperature Pump Depth Units: uS/cm	
Volume Units: uS/cm	
OM 6)	Cumulative
(c) (Units) (NTU) Uncorrected Corrected (°C)	Purge Volume;
	(gal)
7/98 1 9.36 Moderate 637 403 55.5 12	5
7/98 3 8.36 Moderate 666 421 55.5 13	15
7/98 5 8.31 High 732 463 55.5 14	25
7/98 7 8.37 High 742 471 55.1 15	35
7/98 9 8.39 High 743 473 54.9 18	45
	
	
NOTE: STABILIZATION TEST IS COMPLETE WHEN 3 SUCCESSIVE READINGS ARE WITHIN THE FOLLIMITS: $_{\rm P}$ H - $_{\rm \pm}$ 0.1 $_{\rm P}$ H; COND $_{\rm \pm}$ 5%, TEMP (CORRECTED); TEMP $_{\rm \pm}$ 0.5°c; TURBIDITY $_{\rm \pm}$ 10%	LOWING
Signed Date QC'd By Date	



WELL DEVELOPMENT RECORD

PRC	JECT NA	ME: <u>L.E</u>	. Carpenter		WELL	NUMBER: N	<u>/W-19-3</u>	
	-					DIAMETER:	4"	
	-		7/98			ER: <u>ENVIR</u>	OTECH	
			Whal					
			minute):					
Wate	er level be	fore purg	ging (neare:	st 0.01 ft. b	elow refere	nce point) <u>1</u>	1.26 feet	
					logs) <u>17.95</u>		•	
Calc	ulated vol	ume of v	vater in cas	ing	5 Gallor	ns (1 Volum	e)	
Wea	ther cond	itions	,,	N/A				
Date 矣	. Well -	рН •	Turbidity			Temperature		Cumulative *
	Volume			Units	uS/cm			Purge Volume: 2
	(gal) ::	(Units)	all and the second	** was reserved to the first	Corrected	(°Ć)	(0.01 ft.)	(gal) = 1-
2/27/98	1	9.48	Moderate	<i>7</i> 55	464	57.9	12	5 15
2/27/98	3	9.48	High	751	461	57.9	13	25
2/27/98	5	9.36	High	749	462	57.6	16	35
2/27/98	7	9.18	High	721	454 451	55.8 55.6	17	45
2/27/98	9	9.15	High	715	451	33.0	.17	
					*			
						:		
								
								
		<u> </u>			_			
				:				
ì								
								
NOTE	E: STABILIZA	ATION TEST	T IS COMPLET - <u>+</u> 5%, TEMP (C	E WHEN 3 SU CORRECTED);	CCESSIVE REATEMP ±0.5°c;	DINGS ARE W TURBIDITY ±1	ITHIN THE FOI 0%	LOWING
							·	
Sign	ed			Date	QC'd By	7	Date	e



WELL DEVELOPMENT RECORD

PRO	JECT NA	ME: <u>L.E</u>	. Carpenter	<u>. </u>	WELL I	NUMBÉR: <u>I</u>	MW-19-4	
PRO	JECT NU	MBER:_		3868.03	WELL I	DIAMETER	: <u>4 "</u>	
DAT	ΓE:	2/27	7/98		SAMPI	ER: ENVIE	ROTECH	
Тур	e Of Pumj	Used:	Wha	ler Pump				
Pun	ping Rate	gallon/1	minute):	2 gpm				
Wat	er level be	fore pur	ging (neare	st 0.01 ft. b	elow refere	nce point) 🧕	0.03 feet	
Dep	th to botto	m of we	ll (obtained	l from well	logs) <u>17.76</u>	feet		
Calc	ulated vo	lume of v	vater in cas	ing	5 Gallor	ns (1 Volum	e)	
Wea	ther cond	itions	 	N/A	 , 			
Date 🗽		- *pH ==	Turbidity (Condu	ictivity 🚉	Temperature	Pump Depth	Cumulative 2
	Volume			Units:			(0.01 ft.)	Purge Volume: 3.
7		patient manggir dagen an affilie		2 5 6 7 6 .	Corrected:	(°C)	Conditional Condition of the Condition o	(gal) ===
2/27/98	3	8.88 8.76	Moderate	936 937	590 597	55.7 54.8	10	5 15
2/27/98 2/27/98	5	8.51	High High	948	605	54.7	13	25
2/27/98	7	8.23	High	921	588	54.6	16	35
2/27/98	9	8.17	High	916	584	54.7	17	45
			•	, to the second				
				_				
					:			
					·			
					, ,			
	· · · · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·				
		<u> </u>						
						DINGS ARE WI TURBIDITY ±10	THIN THE FOL 19%	LOWING
Signe	ed			Date	QC'd By		——————————————————————————————————————	

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR/HIS AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee: Name of Facility: Location:

NJPDES Number:

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

2 5 - 5 1 9 5 3

Longitude (one-tenth of a second) :

Latitude (one-tenth of a second):
Elevation of Top of Casing (cap off)
(One-hundredth of a foot): inner well

(One-hundredth of a foot): inner well Owners Well Number (As shown on application or plans):

West	74° 34′ 44.0"
North	40° 54′ 17.0"
	638.86
	M.W 19-1

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Keith W. Condit

SEAL

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

L.S. No. 12808

PROFESSIONAL LAND SURVEYOR'S LICENSE

The Department reserves the right in cases of violation of permit specified ground water limits of Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be resurveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall not be considered to be a major modification of the NJPDES permit.

THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR/HIS AGENT

GROUND WATER MONITORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION

Name of Permittee: Name of Facility: Location:

NJPDES Number:

LAND SURVEYOR'S CERTIFICATION

Well Permit Number (As assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

2 5 - 5 1 9 5 6

Longitude (one-tenth of a second) :

Latitude (one-tenth of a second):
Elevation of Top of Casing (cap off)

(One-hundredth of a foot): inner well Owners Well Number (As shown on application or plans):

West	74° 34' 44.0"			
North	40° 54' 16.7"			
 -	637.74			
M.W 19 - 4				

AUTHENTICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Keith W. Condit

SEAL

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

L.S. No. 12808

PROFESSIONAL LAND SURVEYOR'S LICENSE

The Department reserves the right in cases of violation of permit specified ground water limits of Ground Water Quality Standards (N.J.A.C. 7:9-6.1 et seq.) to require that wells be resurveyed to an accuracy of one-hundredth of a second latitude and longitude. This shall not be considered to be a major modification of the NJPDES permit.

New Jersey Department of Environmental Protection Bureau of Water Allocation MONITORING WELL RECORD

Well Permit No.

	· · ·	the control of the state of the		Atlas She	et Coordina	tes: <u>***</u>		
OWNER IDENTIFICAT	TION - Owner	SA CHARLE PART						
Address City	CLEVEL ACTO	State		: }		Zip Code		
				s Well No.		<i>;</i>		
County Services	not the same as ow	Municipality	4 (9 (d)	Lo:	t No. 📜	Block N	o. <u> </u>	
Address	দ সক্ষাৰ হটা	ner please give addressMunicipality			DATE WE	ILSTARTED S	, ;	
		gories) <u> </u>			ATE WELL	COMPETED		
Regulatory Program R	lequiring Well	Solies)		Case I.I	D.#	www.errus		
		R (if applicable)				Tele. #	11-21-32	
WELL CONSTRUCT	·ft. :	Note: Measure all depths from land surface	Depth to	Depth to Bottom (ft.)	Diameter (inches)	Material	Wgt./Rating (lbs/sch no.)	
Well finished to	ft.	Single/Inner Casing	-		-,	A 10 10 10 10 10 10 10 10 10 10 10 10 10		
Borehole diameter:	in.	Middle Casing (for triple cased wells only)	• •			***		
Bottom	in.	Outer Casing (largest diameter)	_		-			
	sh mounted	Open Hole or Screen (No. Used)					-3	
up) above land surface	ft.	Blank Casings (No. Used)		. ••		· .		
Was steel protective casi ☐Yes ☐ No	_	Tail Piece			•			
Static water level after dr	•	Gravel Pack	-4	, , ,	?		11	
Water level was measure Well was developed for _		Grout		مستند مستدلست	Š.	Neat Cement Bentonite	lbs.	
at gpm	Gi	Grouting Method						
Method of development	1.14	G '	rilling Me	thod		<u> </u>	<u>. </u>	
Was permanent pumping		? ∐Yes ⊡ No			GEOLOG	aic i og		
Pump capacity	gpm		Note e	ach depth wh		as encountered in	consolidated	
Pump type:	· ·		format	ions.				
Drilling Fluid	Type o	of Rig			• •		<u>0</u>	
Health and Safety Plan	submitted? Yes] No	1	•				
Level of Protection used		• •		,				
accordance with a		bove referenced well in rements and applicable lations.						
Drilling Company								
Well Driller (Print)	·		<u> </u>					
Driller's Signature		<u> </u>						
Registration No.		Date / /						

New Jersey Department of Environmental Protection Bureau of Water Allocation MONITORING WELL RECORD

Well Permit No.

THE PROPERTY OF THE PROPERTY O	. T CASHWATER		Atlas She	et Coordina	tes:	35-1		
OWNER IDENTIFICATION - Owner		*						
AddressCity	State		£i .		Zip Code	114		
			- \A/-11 KI-	,	بشار برجوري			
VELL LOCATION - If not the same as ow County	ner please give address.	Owners	s well No	t No	Block N	Vo. Vivil		
Oounty	Multicipanty							
Address								
TYPE OF WELL (as per Well Permit Cate	gories)	1		ATE WELL	COMPETED	<u></u>		
Regulatory Program Requiring Well								
CONSULTING FIRM/FIELD SUPERVISC	R (if applicable)	7 27	1. 17 m	: ; ;	Tele. #	<u> </u>		
WELL CONSTRUCTION	Note: Measure all depths	Depth to		Diameter	Material	Wgt./Rating		
Fotal depth drilledft. Well finished toft.	from land surface	Top (ft.)	Bottom (ft.)	(inches)		(lbs/sch no.)		
Well finished to π.	Single/Inner Casing	7	(<u>2</u> 2)			2000		
Borehole diameter:	Middle Casing		-	_ <u></u>	<u></u>	_		
Top in. Bottom in.	(for triple cased wells only)							
	Outer Casing (largest diameter)			<u></u> .	***			
Nell was finished: Pabove grade	Open Hole or Screen			,	,•	1 100		
٠	(No. Used)	1.0	V			- 1/C		
f finished above grade, casing height (stick up) above land surfaceft.	Blank Casings							
Vas steel protective casing installed?	(No. Used)					 		
☐Yes ☐ No	Tail Piece		1		-			
Static water level after drilling ft.	Gravel Pack	٠,	100		-	1.7. 1. 1.		
Vater level was measured using		1	422		Neat Cement	ibs.		
Vell was developed for hours	Grout		معرد مستري	·	Bentonite	Tbs.		
atgpm		Grouting Method Drilling Method						
Method of development	Đ	rilling Me	thod		,*			
Was permanent pumping equipment installed		-		GEOLOG	alo Log			
Pump capacitygpm		Note e	ach depth wh		as encountered in	consolidated		
, , ,		format						
Pump type:	. Pring							
Drilling FluidType of	of Rig		<u>, , , , , , , , , , , , , , , , , , , </u>			-		
Health and Safety Plan submitted? Tyes] No					<u></u>		
Level of Protection used on site (circle one)	****		<u> </u>					
I certify that I have constructed the a accordance with all well permit requi State rules and regu	rements and applicable							
Drilling Company		-						
Well Driller (Print)								
Driller's Signature								
Registration No.	Date/							

New Jersey Department of Environmental Protection Bureau of Water Allocation MONITORING WELL RECORD

Well Permit No. _____ - 54363

			Atlas She	et Coordina	tes::	
OWNER IDENTIFICATION - Owner						
AddressCity	State		- ; !;		Zip Code <u>+</u> 7	114
WELL LOCATION - If not the same as ow	ner please give address.	Owner's	s Well No.	:		
County	Municipality	reen krii tiyaan	Lo	t No	Block N	0
Address					LL STARTED	
- OS MELL (no non Well Permit Cate	aorios) — emelos a tento			DATE WELL	COMPETED	
TYPE OF WELL (as per Well Permit Cate Regulatory Program Requiring Well	gones) <u>aan aan aan a</u>		Case I.	D.# <u> 31</u>	100001 (1277 10	
_						
CONSULTING FIRM/FIELD SUPERVISO	R (if applicable)			<u> </u>	lele. #	
WELL CONSTRUCTION	Note: Measure all depths	Depth to	Depth to	Diameter	Material	Wgt./Rating
Total depth drilled ft. , Well finished to ft.	from land surface	Top (ft.)	Bottom (ft.)	<u> </u>		(lbs/sch no.)
	Single/Inner Casing		1.	,		
Borehole diameter:	Middle Casing (for triple cased wells only)		-		~ -	
Topin. Bottomin.	Outer Casing					
Well was finished: ☐above grade	(largest diameter)					
flush mounted	Open Hole or Screen (No. Used		./	4	-	0 790
If finished above grade, casing height (stick up) above land surface ft.	Blank Casings	:				- /
	(No. Used)		_			
Was steel protective casing installed? ☐Yes ☐ No	Tail Piece				g), mare t	
Static water level after drilling ft.	Gravel Pack	4	11.	4.	27	142000
Water level was measured using					Neat Cement	lbs.
Well was developed forhours	Grout			,	Bentonite	lbs.
atgpm		-	ethod		ж.	
Method of development	Ŭ	rilling Met	thod	· · · · · · · · · · · · · · · · · · ·	<u> </u>	
Was permanent pumping equipment installed	? Yes No			GEOLOG	EIC LOG	
Pump capacitygpm		Note ea	ach depth wh		as encountered in	consolidated
Pump type:	<u> </u>	formati	ions.			
Drilling Fluid Type o	f Dia					
			•		• •	
Health and Safety Plan submitted?	_		· · · · · · · · · · · · · · · · · · ·			
Level of Protection used on site (circle one)	None D C B A	1				
I certify that I have constructed the ab accordance with all well permit requir State rules and regul	ements and applicable ations.					
Drilling Company		-				
Well Driller (Print)	· · · · · · · · · · · · · · · · · · ·					
Driller's Signature	the contract of the contract o			-		
Registration No.	Date//	· L				

New Jersey Department of Environmental Protection Bureau of Water Allocation

MONITORING WELL RECORD Well Permit No. _______.5135.5 Atlas Sheet Coordinates ______ Address STATE OF STAT State ____ Zip Code City _____ WELL LOCATION - If not the same as owner please give address. Owner's Well No. ______ County Municipality Manager Lot No. D Block No. 28-44 Address _____ETAIN AND EF DATE WELL STARTED _ 2 /4 2 /2 2 TYPE OF WELL (as per Well Permit Categories) _ Case I.D.# 3510 920 1687 18 Regulatory Program Requiring Well CONSULTING FIRM/FIELD SUPERVISOR (if applicable) WELL CONSTRUCTION Diameter Wgt./Rating Depth to Note: Measure all depths Depth to Material Total depth drilled ______ Bottom (ft.) (inches) (lbs/sch no.) from land surface Top (ft.) Well finished to _____ft. 1 2 2 -Single/Inner Casing Borehole diameter: Middle Casing Top _____ in.
Bottom _____ in. (for triple cased wells only) Outer Casing (largest diameter) Well was finished: above grade ☐ flush mounted 2 10 11 21 Open Hole or Screen (No. Used If finished above grade, casing height (stick Blank Casings up) above land surface _____ ft. (No. Used Was steel protective casing installed? Tail Piece ☐Yes ☐ No Static water level after drilling _____ft. 14 Gravel Pack الوخ السيآ Water level was measured using ______ ibs. Neat Cement Grout _lbs. Bentonite Well was developed for _____ hours at _____gpm But the same Grouting Method _____ Method of development ____ -Drilling Method _____ Was permanent pumping equipment installed? ☐Yes ☐No GEOLOGIC LOG Pump capacity ______gpm Note each depth where water was encountered in consolidated Pump type: formations. Drilling Fluid ______ Type of Rig _____ Health and Safety Plan submitted? ☐ Yes ☐ No Level of Protection used on site (circle one) None D C B A I certify that I have constructed the above referenced well in accordance with all well permit requirements and applicable State rules and regulations. Drilling Company Well Driller (Print) Driller's Signature _____

Registration No. ______ Date _____/ -___/ /

DWR-138 M

New Jersey Department of Environmental Protection Bureau of Water Allocation

11/30	MONITORING W	ELL R	ECORD		a Rithman	
					<u> - 51088</u>	
			Atlas She	et Coordina	tes <u>sa : c</u>	37.1
OWNER IDENTIFICATION - Owner	C. C. C. C. C. C. C. C. C. C. C. C. C. C		_			
Address	State				Zip Code 🚟	<i>f-</i>
WELL LOCATION - If not the same as ow	ner please give address.	Owner's	s Well No	No.	Block N	<u> </u>
WELL LOCATION - If not the same as ow County	Municipalitysaa::	remai bir				
Address				DATE WE	LL STARTED	
TYPE OF WELL (as per Well Permit Cate	egories) 			ATE WELL	COMPETED	_//
Regulatory Program Requiring Well	TRACT S		Case I.I	D.#	TEATH (SECTION	·
CONSULTING FIRM/FIELD SUPERVISO	OR (if applicable)		· ·		Tele. # <u>***/ 7 /</u>	<u>``. </u>
WELL CONSTRUCTION	Note: Measure all depths	Depth to	Depth to	Diameter	Material	Wgt./Rating
Total depth drilledft.	from land surface	Top (ft.)				(lbs/sch no.)
Well finished toft.	Single/Inner Casing	P 3	1.	Ų.	- 1-17	200 90
Borehole diameter: Top in. Bottom in.	Middle Casing (for triple cased wells only)			-	 ·	
Well was finished: above grade	Outer Casing (largest diameter)			. . .		
flush mounted	Open Hole or Screen (No. Used ——)	1		g.		25 1 7 2
If finished above grade, casing height (stick up) above land surface ft.	Blank Casings (No. Used)					_
Was steel protective casing installed? ☐Yes ☐ No,	Tail Piece			-	, 	
Static water level after drillingft.	Gravel Pack	9	1.0	2	Some	Broke.
Water level was measured using	Grout	2,,,,,,	ij	3	Neat Cement	ibs.
Well was developed forhours					Bentonite	
atgpm	G N	routing Me Irillina Me	etnod thod			
Method of development		initing wic				
Was permanent pumping equipment installed	l? ∐Yes ⊡No			GEOLOG	SIC LOG	
Pump capacitygpm		Note e format		ere water w	as encountered in	consolidated
Pump type:		ionnai				
Drilling Fluid Type	of Rig					<u> </u>
Health and Safety Plan submitted? ☐ Yes [☐ No					
Level of Protection used on site (circle one)	None D C B A					
I certify that I have constructed the a accordance with all well permit requi State rules and regu	rements and applicable lations.	1				
Drilling Company	AWART TO EMP.	-				
Well Driller (Print)			· · · · · · · · · · · · · · · · · · ·			

Registration No.

Date

SEMIAL# UULUU DWR-133M (8/95)

	17	LOF	14 E AA	JEUSE	,
DEPARTMENT	OF	ENVI	RONN	JENTAL	PROTECTIO
		TRE	NOTI	NJ	

, Mail	t

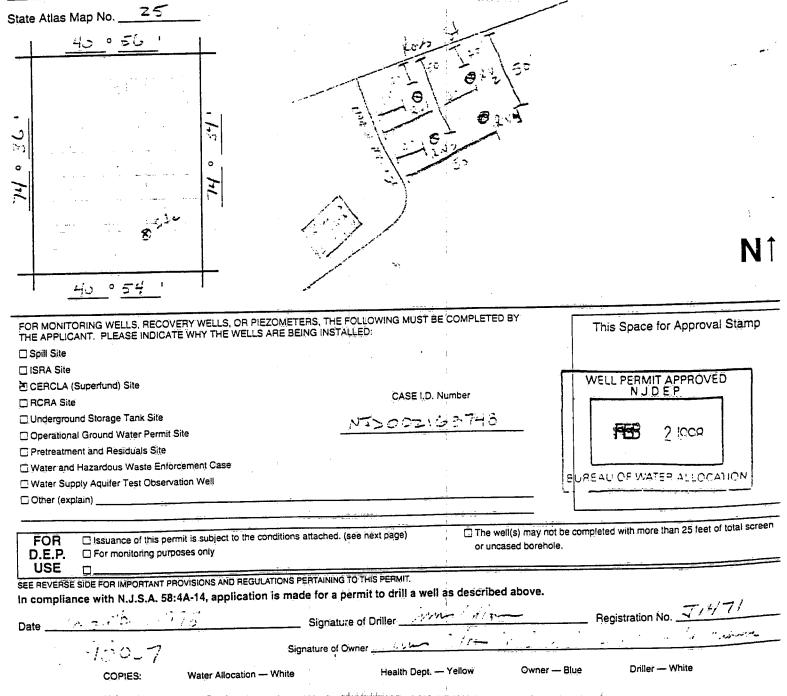
NJDEP -**Bureau Water Allocation**

MONITORING WELL PERMIT

	_			
Permit No		1	دَ ،	<u>(</u>

CN 426 Trenton, NJ 08625-0426	VALID ONLY AFTER A	PPROVAL BY THE D.E.P.	COORD #	<u> 35 .C2.</u>	3 N
Owner LE CARPE Address 1301 6 9-1 5 CLAVALIAN 0	- Suite Eloo	Addiess	H BATLAN LEXINGTON LOW N	بكا لم د	
Name of Facility L. A. CAR, Address 170 M.	MAN I. NIN I.	Diameter of Well(s) # of Wells Applied for (max. 10) Type of Well (see reverse)	Inches Dep Will be i	posed oth of Well(s) I pumping equipment installed? YES IN N If Yes, give pump capacity	
	LOCATION	OF WELL(S)			

Draw sketch of well(s) nearest roads, buildings, etc. with marked distances in feet. Each well MUST be labeled with a name and/or number on the sketch. County // JAAIS Municipality Block # 0801 Whateron State Atlas Map No. 0 56 ' ० इस्



OR MONITORING WELLS, RECOVERY WELLS, OR PIEZOMETERS, THE APPLICANT. PLEASE INDICATE WHY THE WELLS ARE BEING I	THE FOLLOWING MUST BE COMPLETED BY INSTALLED:	This Space for Approval Stamp
Spill Site	• •	
ISRA Site	4	
CERCLA (Superfund) Site		WELL PERMIT APPROVED N J D E P
RCRA Site	CASE I.D. Number	145.0 5.7
Underground Storage Tank Site	NT>002163748	
Operational Ground Water Permit Site		1953 2 1009
Pretreatment and Residuals Site		
Water and Hazardous Waste Enforcement Case		
Water Supply Aquifer Test Observation Well		BUREAU OF WATER ALLOCATION
Other (explain)		
FOR Subject to the conditions attact D.E.P. Sor monitoring purposes only	ched. (see next page)	may not be completed with more than 25 feet of total scre borehole.
USE D		
EE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTA	INING TO THIS PERMIT.	ove
n compliance with N.J.S.A. 58:4A-14, application is made for		- 4/7/
Pate Sig	gnature of Driller	Registration No. 7/4/7/
150.7 Signatur	re of Owner	and the second second
COPIES: Water Allocation — White	Health Dept. — Yellow G	Owner — Blue Driller — White
	and the second s	

רכבים) ושכני -חיים

Mail to

STATE OF NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION TRENTON, NJ

NJDEP	•
Bureau	Water Allocation
211 400	

	\rightarrow		
Permit No.	<u>`</u>	_	- '

Bureau Water Allocation CN 426	MONITORII	NG WELL PERMIT	<u>ت</u> د .	Permit No.
Trenton, NJ 08625-0426	VALID ONLY AFTER	RAPPROVAL BY THE D.	S.P.	
		r	COORD	1#: 25 .00.
Owner	···	Driller		market in
Address	7			
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4/11/	Address	<u> </u>	Warte.
Name of Facility	The second second			11/2018
Address / Address		Diameter of Well(s)	Inches	Proposed Depth of Well(s)
		# of Wells Applied for (max. 10)	/ /	Will pumping aguing
The state of the s	·	Type of Well		be installed? YES□ NO ☐
		(see reverse)	and the	If Yes, give pump capacity . (Framula
Lot # Block # Municipality		OF WELL(S)		
Municipanty	County	Draw sketch	of well(s) near	est roads, buildings, etc. v
State Atlas Map No.			recourses in legi-	Pach wall willet by i.e.
tate Alias Map No.		with	name and/or	number on the sketch.
1 2/7 0 5/2				
		·		
·		مز		
-			/:	
	•		\.^^	Α
1 7			A NO	MA
	بمنعمت المتعارب	\ \		•
	,	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		
5		· · · · · · · · · · · · · · · · · · ·		
		- i		
•				
40 .34 .	W. parameter			N
	, N	//		•
R MONITORING WELLS, RECOVERY WELLS, OR I E APPLICANT. PLEASE INDICATE WHY THE WELL	PIEZOMETERO TUE			
E APPLICANT. PLEASE INDICATE WHY THE WELL Spill Site	S ARE BEING INSTALLED:	MUST BE COMPLETED BY		i- C (
SRA Site			'n	is Space for Approval Stamp
CERCLA (Superfund) Site			, _	
RCRA Site	·			WELL
Inderground Storage Tank Site	CÃ	SE I.D. Number		WELL PERMIT APPROVED
Operational Ground Water Permit Site	$f_{ij} = \frac{1}{2} \left(\frac{1}{2} - \frac{1}{2} \right)^{-1}$		·	H.J.D.E.P. HOVEL
retreatment and Residuals Site			11	FEB 17 ICCO
Vater and Hazardous Waste Enforcement Case				1 17 1998 1
ater Supply Aquifer Test Observation Well ther (explain)		•	I I Bun	
,,			130K	EAU OF WATER ALLOCATION
OB. S				ALLOCATION
OR ☐ Issuance of this permit is subject to the co	onditions attached, (see next name)			with more than 25 feet of total scree

FOR D.E.P. USE	☐ Issuance of this permit is subject to the conditions attached. (see next page) ☐ For monitoring purposes only	The well(s) may not be completed with more the or uncased borehole.
E DOVEDOR		

SEE REVERSE SIDE FOR IMPORTANT PROVISIONS AND REGULATIONS PERTAINING TO THIS PERMIT.

In compliance with N.J.S.A. 58:4A-14, application is made for a permit to drill a well as described ab

Date	as described above.		
and the second	Signature of Driller Registration No.	 . 1	•
	Signature of Owner	 	<i>-</i>



Appendix D Field Sampling Data

Monitoring Well Data

Client RMT	Project	LE Carpenter
Joh Not C 022	Date Sampled: 3/12/98	Analyst R. Toogood

									*
Weil ID	MW-19-1	MW-19-2	MW_19-3	MW-19-4	MW-19-5	MW-15S	MW-15I	MW-14I	MW-22
Depth to Water From TOC									
feet (before purging)	10.91	10.94	11.64	9.60	11.03	9.79	9.68	2.00	2.20
Depth to Water From TOC			A11 - 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
feet (after purging)	11.98	11,36	12.34	12.02	11.37	9,38	9,71	2.11	5.91
Depth to Water From TOC									
feet (before sampling)	10.08	11.00	11.81	10.05	11.11	9.81	9.68	2.00	2.21
Depth to Bottom From TOC				,		40.40		40.00	0.04
feet	18.00	17.83	17.80	17.82	18.30	19,48	40.14	43.32	8.81
PID Reading from Well			_			0.0	0.0	0.0	30.0
Casing (ppm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
				205	704	4.95	6.78	8.18	7.35
pH before Purge	7.20	6.95	7.00	6.65	7.04	4.90	6.75	0.10	1.00
		l <u>.</u> .	٠	7.	5.8	5.8	3.9	7.3	6.5
Temp. before Purge (°C)	7.3	7.1	6.5	7.4	0.0	J.0	3.3		
Diss. Oxygen before Purge		0.0	1.	4.2	3.8	9.6	4.8	3.9	1.3
(ppm)	2.1	2.2	4.3	4:2	1 3.5	<u> </u>			
Cond. before Purge	000	600	710	990	150	60	150	160	350
(uṃḥos/cṃ)	600	690	7,10						
	4.63	4.49	4.02	5.36	1.18	6.32	4.97	6.74	1.07
Water Volume in Well (gal.)				peristaltic	peristaltic	peristaltic	peristaltic	peristaltic	peristaltic
Direct Mathed	peristaltic purno	peristaltic	peristaltic	pumo	pumo	pump	pumo	pumo	ритр
Purge Method	puito	pane							
Purge Start Time	9:26	9:33	9:09	9:07	9:44	10:50	10:50	11:56	11:58
Purge Start Time	1	-							
Purge End Time	9:42	9:51	9:31	9:25	9:50	11:13	11:09	12:25	12:03
raigo Eria Titto						İ			
Purge Rate (gpm)	0.9	0.8	0.5	0.8	0.7	0.8	0.8	0.7	0.6
(garay									4
Volume Purged (gal.)	14	14	13	17	4	19	15	21.	4
				1	l			044	7.32
pH after Purge	7.21	6,84	7.02	6.70	6.79	6.75	7.03	8.14	1.32
									6.4
Temp. after Purge (°C)	8.4	8.7	8.7	8.9	7.4	8.6	8.8	9.8	0.4
Diss. Oxygen after Purge								3.9	2.7
(ppm)	3.0	2.3	4.5	4.8	2.0	3.8	1.3	<u> </u>	
Cond. after Purge					0.00	400	240	180	360
(umhos/cm)	650	750	680	1,000	240	100	240	100	
							7.31	8.30	7.33
pH after Sample	7.18	6.91	6.95	6.68	6.92	6.94	7.31	0.30	7.50
							8.6	. 8.8	6.1
Temp. after Sample (°C)	6.7	7.6	8.0	8.1	6.1	8.4	0.0		
Diss. Oxygen after Sampling				-	2.0	4.8	2.3	3.4	2.4
(ppm)	4.1	3.0	5.8	5.6	2.8	4.0	4.5	 •••	
Cond. after Sample			700	4 000	230	100	230	180	360
(umhos/cm)	690	750	700	1,000	teflon	teflon	teflon	teflon	teflon
	teflon	teflon	teflon	teflon		bailer	bailer	bailer	bailer
Sampling Method	bailer	bailer	bailer	bailer	bailer	Dallei	Dallei	- Julius	
<u>_</u>	40.00	10.47	40.00	9:56	11:23	11:22	11:16	12:42	12:30
Time of Sampling	10:08	10:17	10:02	9.50	1 11.23	11.22	111.40	<u> </u>	

Monitoring Well Data

Client RMT		Project	LE Carpenter
Job No: C 022	Date Sampled: 3/	12/98	Analyst: R. Toogood

MW-19-1	MW-19-2	MW_19-3	MW-19-4	MW-19-5	MW-15S	MW-151	MW-14I	MW-22
10.91	10.94	11.64	9.60	11.03	9.79	9.68	2.00	2.20
				44.67	0.00	0.74	244	5.91
11.98	11.36	12.34	12.02	11.37	9.38	9.71	2,11	5.91
l			40.05	44 44	0.81	9.68	200	2.21
10.08	11.00	11.81	10.05	11.11	3.01	0.00	2.00	4.4
18.00	17.83	17.80	17.82	18.30	19.48	40.14	43.32	8.81
							0.0	20.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.0
				40.	4.05	e 70	0.10	7.35
7.20	6.95	7.00	6.65	7.04	4.50	6.78	0.10	7.00
		ا م	7,	5.0	5.8	30	7.3	6.5
7.3	7.1	6.5	1,4	3.6	2.0	0.0		
1	22	13	42	3.8	9.6	4.8	3.9	1.3
2.1	4.4	4,5	7.4	3.5		~		
600	600	710	990	150	60	150	160	350
900	090	1.0						
4.63	4 49	4.02	5.36	1.18	6.32	4.97	6.74	1.07
			oeristaltic	peristaltic	penstaltic	peristaltic	peristaltic	penstaltic
1 *		pumo	pumo	pumo	pumo	pumo	pump .	pump
, P	F = 1, F							44.50
9:26	9:33	9:09	9:07	9:44	10:50	10:50	11:56	11:58
						44.00	40.00	12:03
9:42	9:51	9:31	9:25	9:50	11:13	11:09	12:25	12,03
		<u> </u>	Ĭ		٠. ا	م ا	0.7	0.6
0.9	0.8	0.5	0.8	0.7	U.0	0.0	0.7	0.0
			47	,	10	15	21	4
14	14	13	1 1/	4	13	- 13	-	
		7.00	6.70	67a	6.75	7.03	8.14	7.32
7.21	6.84	7.02	6.70	0.73	3.73	1.00		
	,-	9.7	80	74	86	8.8	9.8	6.4
8.4	8.7	0.7	0.3		J. J. J. J. J. J. J. J. J. J. J. J. J. J			
20	23	45	4.8	2.0	3.8	1.8	3.9	2.7
3.0	2.3							
650	750	680	1,000	240	100	240	180	360
- 000	700	727						
7 18	6.91	6.95	6.68	6.92	6.94	7.31	8.30	7.33
1.10	3.51	1					1	
6.7	7.6	8.0	8.1	6.1	8.4	8.6	8.8	6.1
 •	 							.
4.1	3.0	5.8	5.6	2.8	4.8	2.3	3.4	2.4
 								
690	750	700	1,000	230	100			360
teflon	teflon	teflon	teflon	teflon	teflon		1	teflon
bailer	bailer	bailer	bailer	bailer	bailer	bailer	bailer	bailer
1	T		T T	1	ì	1	i	12:30
	10.91 11.98 10.08 18.00 0.0 7.20 7.3 2.1 600 4.63 peristaltic pumo 9:26 9:42 0.9 14 7.21 8.4 3.0 650 7.18 6.7 4.1 690 teflon	10.91 10.94 11.98 11.36 10.08 11.00 18.00 17.83 0.0 0.0 7.20 6.95 7.3 7.1 2.1 2.2 600 690 4.63 4.49 peristaltic pump 9:26 9:33 9:42 9:51 0.9 0.8 14 14 7.21 6.84 8.4 8.7 3.0 2.3 650 750 7.18 6.91 6.7 7.6 4.1 3.0 690 750 teflon teflon	10.91 10.94 11.64 11.98 11.36 12.34 10.08 11.00 11.81 18.00 17.83 17.80 0.0 0.0 0.0 7.20 6.95 7.00 7.3 7.1 6.5 2.1 2.2 4.3 600 690 710 4.63 4.49 4.02 peristaltic pump peristaltic pump peristaltic pump 9:26 9:33 9:09 9:42 9:51 9:31 0.9 0.8 0.5 14 14 13 7.21 6.84 7.02 8.4 8.7 8.7 3.0 2.3 4.5 650 750 680 7.18 6.91 6.95 6.7 7.6 8.0 4.1 3.0 5.8 690 750 700 teflon teflon teflon	10.91 10.94 11.64 9.60 11.98 11.36 12.34 12.02 10.08 11.00 11.81 10.05 18.00 17.83 17.80 17.82 0.0 0.0 0.0 0.0 7.20 6.95 7.00 6.65 7.3 7.1 6.5 7.4 2.1 2.2 4.3 4.2 600 690 710 990 4.63 4.49 4.02 5.36 peristatic pump peristatic pump peristatic pump peristatic pump 9:26 9:33 9:09 9:07 9:42 9:51 9:31 9:25 0.9 0.8 0.5 0.8 14 14 13 17 7.21 6.84 7.02 6.70 8.4 8.7 8.7 8.9 3.0 2.3 4.5 4.8 650 750 680 1,000	10.91 10.94 11.64 9.60 11.03 11.98 11.36 12.34 12.02 11.37 10.08 11.00 11.81 10.05 11.11 18.00 17.83 17.80 17.82 18.30 0.0 0.0 0.0 0.0 0.0 7.20 6.95 7.00 6.65 7.04 7.3 7.1 6.5 7.4 5.8 2.1 2.2 4.3 4.2 3.8 600 690 710 990 150 4.63 4.49 4.02 5.36 1.18 peristaltic purp peristaltic purp <td>10.91 10.94 11.64 9.60 11.03 9.79 11.98 11.36 12.34 12.02 11.37 9.38 10.08 11.00 11.81 10.05 11.11 9.81 18.00 17.83 17.80 17.82 18.30 19.48 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.20 6.95 7.00 6.65 7.04 4.95 7.3 7.1 6.5 7.4 5.8 5.8 2.1 2.2 4.3 4.2 3.8 9.6 600 650 710 990 150 60 4.63 4.49 4.02 5.36 1.18 6.32 peristaltic purp peristaltic purp</td> <td> 10.91 10.94 11.64 9.60 11.03 9.79 9.68 11.98 11.36 12.34 12.02 11.37 9.38 9.71 10.08 11.00 11.81 10.05 11.11 9.81 9.68 18.00 17.83 17.80 17.82 18.30 19.48 40.14 0.0</td> <td> 10.91 10.94 11.64 9.60 11.03 9.79 9.68 2.00 11.98 11.36 12.34 12.02 11.37 9.38 9.71 2.11 10.08 11.00 11.81 10.05 11.11 9.81 9.68 2.00 18.00 17.83 17.80 17.82 18.30 19.48 40.14 43.32 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.20 6.95 7.00 6.65 7.04 4.95 6.78 8.18 7.3 7.1 6.5 7.4 5.8 5.8 3.9 7.3 2.1 2.2 4.3 4.2 3.8 9.6 4.8 3.9 600 690 710 990 150 60 150 160 4.63 4.49 4.02 5.36 1.18 5.32 4.97 6.74 peristatic purro</td>	10.91 10.94 11.64 9.60 11.03 9.79 11.98 11.36 12.34 12.02 11.37 9.38 10.08 11.00 11.81 10.05 11.11 9.81 18.00 17.83 17.80 17.82 18.30 19.48 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.20 6.95 7.00 6.65 7.04 4.95 7.3 7.1 6.5 7.4 5.8 5.8 2.1 2.2 4.3 4.2 3.8 9.6 600 650 710 990 150 60 4.63 4.49 4.02 5.36 1.18 6.32 peristaltic purp peristaltic purp	10.91 10.94 11.64 9.60 11.03 9.79 9.68 11.98 11.36 12.34 12.02 11.37 9.38 9.71 10.08 11.00 11.81 10.05 11.11 9.81 9.68 18.00 17.83 17.80 17.82 18.30 19.48 40.14 0.0	10.91 10.94 11.64 9.60 11.03 9.79 9.68 2.00 11.98 11.36 12.34 12.02 11.37 9.38 9.71 2.11 10.08 11.00 11.81 10.05 11.11 9.81 9.68 2.00 18.00 17.83 17.80 17.82 18.30 19.48 40.14 43.32 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 7.20 6.95 7.00 6.65 7.04 4.95 6.78 8.18 7.3 7.1 6.5 7.4 5.8 5.8 3.9 7.3 2.1 2.2 4.3 4.2 3.8 9.6 4.8 3.9 600 690 710 990 150 60 150 160 4.63 4.49 4.02 5.36 1.18 5.32 4.97 6.74 peristatic purro

Client RMT		Project	LE Carpenter	
Job No: C 02	2 Date Sampled: 3	3/12/98	Analyst: I	R. Toogood

Well ID	MW-25	MW-4
Depth to Water From TOC		
feet (before purging)	2.00	5.73
Depth to Water From TOC		
fact (after purging)	8.97	6.31
Depth to Water From TOC		
feet (before sampling)	1.74	5.81
Depth to Bottom From TOC		
feet	9,11	18.31
PID Reading from Well		
Casing (ppm)	0.0	0.0
	•	
pH before Purge	7.37	6.83
Temp. before Purge (°C)	4.5	3.4
Diss. Oxygen before Purge		
(mag)	2.2	2.9
Cond. before Purge		
(umhos/cm)	340	255
(40		
Water Volume in Well (gal.)	1.16	2.05
774.0.	peristattic	peristaltic
Purge Method	pump	pump
Puige Miccioa		
Purge Start Time	12:08	13:18
Furge Start Time	1,50,0	
Briana End Time	12:13	13:25
Purge End Time	, , , , ,	
Purge Rate (gpm)	0.8	1.0
Purge Rate (gpm)		
Volume Purged (gal.)	4	7
Volume Purged (gail)		
11 - 8 8	7.47	6.99
pH after Purge	1.41	0.55
		4.8
Temp, after Purge (°C)	6.1	 ••
Diss. Oxygen after Purge	4.0	2.4
(ppm)	1.8	2.4
Cond. after Purge	000	200
(umhos/cm)	350_	260_
		1
pH after Sample	7.55	6.92
Temp. after Sample (°C)	4.8	3.6
Diss. Oxygen after Sampling		1
(ppm)	2.5	3.9
Cond. after Sample		
(umhos/cm)	340	250
	teflon	teflon
Sampling Method	bailer	bailer
Time of Sampling	12:34	13:36



Appendix E Laboratory Reports

Client ID: MW-19

Site: L.E. Carpenter

Lab Sample No: 56989 Lab Job No: D234

Date Sampled: 04/24/98

Date Received: 04/24/98 Date Extracted: 04/24/98

Date Analyzed: 04/27/98

GC Column: DB-5
Instrument ID: BNAMS3.i Lab File ID: t7640.d

Matrix: WATER Level: LOW

Sample Volume: 1000 ml

Extract Final Volume: 2.0 ml

Dilution Factor: 2.0

SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

Method Detection Limit Analytical Result Units: uq/l Units: ug/l Parameter 6.6 2.2 bis(2-Ethylhexyl)phthalate

Client ID: Field Blank Site: L.E. Carpenter

Lab Sample No: 56990 Lab Job No: D234

Date Sampled: 04/24/98 Date Received: 04/24/98 Date Extracted: 04/24/98

Matrix: WATER Level: LOW

Date Analyzed: 04/27/98

Sample Volume: 1000 ml Extract Final Volume: 2.0 ml

GC Column: DB-5 Instrument ID: BNAMS3.i Lab File ID: t7639.d

Dilution Factor: 1.0

SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

> Analytical Result <u>Units: uq/l</u>

Method Detection Limit

Parameter

Units: uq/l

bis(2-Ethylhexyl)phthalate

ND

ENVIROTECH RESEARCH INC. 777 New Durham Road Edison, New Jersey 08817 Phone: (732) 549-3609 Fax: (732) 549-3679

CHAIN OF CUSTODY / ANALYSIS REQUEST

Phone: (732) 549-3900 Fax: (732) 549-3679											PAGE OF
Name (for report and invoice)		Sampler	Samplers Name (Printed)	rinted)		Site/	Project Identi	fication			
James Van Nartwick		M . /	M. Morse			7	LE Carpontes	nter			
Company	٠	P.O. #				State	(Location of	site) NJ:	NY:	Other:	ler:
Designali Mongement Tech						Regu	Regulatory Program:	ım:			
ت د د	ę	Ana	Analysis Tumaround Time	und Time	ANALY	SIS REQUE	ANALYSIS REQUESTED LENTER"X" BELOW TO INDICATE REQUE	R "X" BELOW	TO INDICATE F	REQUE	LAB USE ONLY
999 1420 Dr. Sute 210	(Standard	П		C			_	_	_	Project No:
State	- (Rush Char	Rush Charges Authorized For.	d-For:	Liy	_	_	_	_	_	820/08
aum Oure	3-5407	2 Week			1/24	_	_	_	_	_	Job No:
Phone Fax .		1 Week	75 77	2	777	_	_	_	_	_	1)234
		B	্য হ	No of	7		_	_	_	_	Sample
Sample Identification	Date	Time	Matrix	Cont.	70	_	_		_	_	Numbers
MW19	hÖlr	#:35	Lyder	2	义 义						56989
TeloHank	mc/12	QC.1 ₁ 1	7	_	\ \						56990
											
		į,					74.00				
Preservation Used: 1 = ICE, 2 = HCl, 3 = H ₂ SO ₄ , 4 = HNO ₃ , 5 = NaOH	4, 4 = HNO3	, 5 = Na(¥	Soil							
6 = Other, 7 = O	7 = Other			Water:				_	-		

Special Instructions			\$	Water Metals Filtered (Yes/No)?
	Company	/Date / Time	Received by.	Company
" All How	Enounted	1/24/8511530 10 V		
•	Company	Date / Time	Recèived by	Company
2)			2)	
Relinquished by	Company	Date / Time	Received by	Сотрапу
3)	•	-	3)	
Relinquished by	Company	Date / Time	Received by	Company
4)			4)	
Laboratory Certifications: New Jer	sey (12543), New York (11	452), Pennsylvania (aboratory Certifications: New Jersey (12543), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132).	ode Island (132).

Client ID: Field Blank Site: L.E. Carpenter

Lab Sample No: 51130 Lab Job No: C320

Date Sampled: 03/25/98 Date Received: 03/25/98 Date Extracted: 03/26/98

Level: LOW

Matrix: WATER

Date Analyzed: 03/30/98 GC Column: DB-5 Instrument ID: BNAMS3.i

Sample Volume: 910 ml Extract Final Volume: 2.0 ml

Dilution Factor: 1.0

Lab File ID: t7014.d

SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

Analytical Result

Method Detection Limit

Parameter

Units: uq/l

Units: uq/l

bis(2-Ethylhexyl)phthalate

ND

Client ID: GEI-2S Site: L.E. Carpenter Lab Sample No: 51131 Lab Job No: C320

Date Sampled: 03/25/98 Date Received: 03/25/98 Date Extracted: 03/26/98 Matrix: WATER Level: LOW

Date Analyzed: 03/30/98

Sample Volume: 900 ml

GC Column: DB-5

Extract Final Volume: 2.0 ml

Instrument ID: BNAMS3.i Lab File ID: t7015.d

Dilution Factor: 1.0

SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

Method Detection Limit Analytical Result Units: uq/l Units: uq/l Parameter 1.2 2.5B bis(2-Ethylhexyl)phthalate

777 New Durham Road Edison, New Jersey 0881.7 Phone: (732) 549-3900 Fax: (732) 549-3679

CHAIN OF CUSTODY / ANALYSIS REQUEST

PAGE 1 OF

Water Metals Filtered (Yes/No)? Other ANALYSIS REQUESTED (ENTER TY BELOW TO INDICATE REQUE ž Site/Project Identification

LE (A1DEILEI
State (Location of site): NJ: 🔀 Regulatory Program: X Samplers Name (Printed)
14. M.C.S.C. | R. J. Leaper 755 - (2-Elly Thery No. of. **Analysis Turnaround Time** Cont. Æ Rush Charges Authorized For: Lear fer Matrix Preservation Used: 1 = ICE, 2 = HCI, 3 = H2SO4, 4 = HNO3, 5 = NaOH 2 Week 1 Week Standard Other Time 335 1 5 40 64:1 \<u>\}_....</u> P.O. # 2p 60173 - 5767 Date _, 7 =·Other Address of Dr Suite 370 City State Zil GOLD Residuals Management Tech. Mr. Trincs Van Northuck Sample Identification Special Instructions Lab Field Blank 6 = Other Tro Blank 0251-566 (4h8) Name (for report and invoice GEI -35

MS FALIPACE Laboratory Certifications: New Jersey (12543), New York (11452), Pennsylvania (68-522), Connecticut (PH-0200), Rhode Island (132) Company Company Company Company 3/35/98 113:00 11 Poplar Received by Received by Received by Received by Date / Time Date / Time Date / Time Date / Time BAVI relect CA Scinuole Company Company Company Company Relinquished by Relinquished by Relinquished by Relinquished by

Client ID: MW-19-1 Site: L.E. Carpenter Lab Sample No: 49155 Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Extracted: 03/19/98 Date Analyzed: 03/25/98

Level: LOW Sample Volume: 990 ml

Matrix: WATER

Extract Final Volume: 2.0 ml

Dilution Factor: 1.0

GC Column: DB-5
Instrument ID: BNAMS3.i Lab File ID: t6892.d

SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

Analytical Result

Method Detection Limit

Parameter

Units: uq/l

Units: uq/l

bis(2-Ethylhexyl)phthalate

190

Client ID: MW-19-2 Site: L.E. Carpenter Lab Sample No: 49156 Lab Job No: C022

Date Sampled: 03/12/98
Date Received: 03/12/98
Date Extracted: 03/19/98
Date Analyzed: 03/25/98

Matrix: WATER
Level: LOW

Date Analyzed: 03/23/98 GC Column: DB-5 Sample Volume: 960 ml Extract Final Volume: 2.0 ml

Instrument ID: BNAMS3.i Lab File ID: t6893.d Dilution Factor: 1.0

SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

> Analytical Result Units: ug/l

Method Detection
Limit
Units: ug/l

<u>Parameter</u>

bis(2-Ethylhexyl)phthalate

8.8

Client ID: MW-19-3 Site: L.E. Carpenter Lab Sample No: 49157 Lab Job No: C022

Date Sampled: 03/12/98 Date Received: 03/12/98 Date Extracted: 03/19/98 Matrix: WATER Level: LOW

Date Analyzed: 03/25/98

Sample Volume: 960 ml Extract Final Volume: 2.0 ml

Dilution Factor: 1.0

GC Column: DB-5 Instrument ID: BNAMS3.i Lab File ID: t6894.d

> SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

> > Analytical Result Units: uq/l

Method Detection Limit Units: uq/l

Parameter

bis(2-Ethylhexyl)phthalate

ND

Client ID: MW-19-4 Site: L.E. Carpenter Lab Sample No: 49158 Lab Job No: C022

Date Sampled: 03/12/98 Date Received: 03/12/98 Date Extracted: 03/19/98 Matrix: WATER Level: LOW

Date Analyzed: 03/25/98

Sample Volume: 900 ml Extract Final Volume: 2.0 ml

GC Column: DB-5

Dilution Factor: 1.0

Instrument ID: BNAMS3.i Lab File ID: t6895.d

> SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

> > Analytical Result Units: uq/l

Method Detection Limit Units: uq/l

Parameter

bis(2-Ethylhexyl)phthalate

ND

Client ID: MW-19-5 Site: L.E. Carpenter Lab Sample No: 49159 Lab Job No: C022

Date Sampled: 03/12/98 Date Received: 03/12/98 Date Extracted: 03/19/98 Date Analyzed: 03/25/98

Matrix: WATER Level: LOW

Sample Volume: 960 ml Extract Final Volume: 2.0 ml

GC Column: DB-5

Dilution Factor: 1.0

Instrument ID: BNAMS3.i Lab File ID: t6898.d

> SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

> > Analytical Result Units: uq/l

Method Detection Limit Units: uq/l

Parameter

bis(2-Ethylhexyl)phthalate

42

Client ID: MW-Dup-19 Site: L.E. Carpenter Lab Sample No: 49160 Lab Job No: C022

Date Sampled: 03/12/98 Date Received: 03/12/98 Date Extracted: 03/19/98 Matrix: WATER Level: LOW

Date Analyzed: 03/25/98

Sample Volume: 920 ml Extract Final Volume: 2.0 ml

Dilution Factor: 1.0

GC Column: DB-5
Instrument ID: BNAMS3.i Lab File ID: t6899.d

> SEMI-VOLATILE ORGANICS - GC/MS METHOD 625

> > Analytical Result Units: ug/l

Method Detection Limit

Parameter

Units: ug/l

bis(2-Ethylhexyl)phthalate

220

777 New Durham Road Edison, New Jersey 08817

CHAIN OF CUSTODY / ANALYSIS REQUEST

Phone: (732) 549-3900 Fax: (732) 549-3679																PAGE OF		
Name (for report and invoice)		Samplers	amplers Name (Printed)						Site/Project Identification									
Samos Ven Nortwick		18 10	P.O. #						L.F. Carpenter									
Company		P.O. #	P.O. #							State (Localion of site): NJ: Y- NY: Other: Regulatory Program:								
Residuals Management To	chinologics	ļ						<u> </u>		<u> </u>						LAB USE ONLY		
Address	516		lysis Turnar	ound Time	<i>\</i>		YSIS R	EQUE	STED	(ENTE	R "X" BI	ELOW T	OINDIC	ATE RE	QUE	Project No:		
City State	Zin	Slandard	ges Authoriza	ed For	-	J. W. J.	`		1	- [-				- [801080		
GAT Plaza Drive Suita	73 3467	2 Week	_		10	$X \subseteq \mathcal{X}$	귌	1		-	1		-		1	Job No:		
Phone Fax		1 Week	百		Įψ		الخ	1	1		1	1		1		Co22		
		Other	\Box		K	133		1	1		1		1		Ι.			
Sample Identification	Date	Time	Matrix	No. of. Cont.	0,1	(S) 13		<u></u>								Sample Numbers		
MW ICI-1	dirks	16 04	Mg.	4.	λ	.										49155		
MW 19-2	1	1017		4.	X.	ų										49/56		
MW 19-3		1060		<u> </u>	^_	`										: 49/57		
MN 19-4 (w/QA)		9.5.		6	<u>, </u>	۸:										49/58		
MW 19-5		11 23,		4	\	^	<u> </u>		<u> </u>							49/59		
MIV DUPIT		437	21	1./	ኦ	<u> </u>							<u> </u>			49/60		
111W155		1122		3	\		ļ				.	ļ				49/61		
MW1S I		1116		35	<u> </u>		ļ	ļ	ļ							49/62		
MW14 I		1212		3	<i>></i>	<u> </u>		1	<u> </u>				<u> </u>			49/63		
MW22	<u> </u>	1230	<u> </u>	3	¥	<u> </u>	1	<u> </u>	<u> </u>		<u> </u>	<u> </u>	ļ			49164		
Preservation Used: 1 = ICE, 2 = HCl, 3 = 1	H2SO4, 4 = HN0	O3, 5 = N	аОН	Soil:		<u> </u>	1		<u> </u>	ļ	<u> </u>		<u> </u>		ļ			
76 = Qiher,	7 = Other			Water:	1,2	1			<u> </u>	<u> </u>	<u> </u>							
Special Instructions	*											_ v	Vater N	/letals	Fillere	ed (Yes/No)?		
	ompany			ate / Time		Rece	ived by	0	1	//				ompany				
1) / (may)	Enough feety ompany		3/13/	11 1		1)	Received by 1) Draken							ellikett Toll				
Relinquished by C	ompany		D	Date / Time			Received by						Company					
2)				1		2)												
Relinquished by C	ompany		D	ate / Time	:	Reco	eived by						Company					
3)				1 1 ====		3)												
Relinquished by	Company		l D	ale / Time	!: #	1	eived by						Com	Company				
4) Laboratory Certifications: New Jersey	(40542) N=	Vosls 14	1460)	Poposi ^d i	(Opi	4)	522\ /	^opp.c	cticuit	(PH.	าวคกง	Rh	ode I	sland	(132)			
Laboratory Certifications: New Jersey	(12043), INEV	N TOLK (I	1432),	L GIIII2AIA	ante	ייטטן ב	المحدد	JUI III C	CHOOL	4		, ,,,,,			, /	•		